



Vera C. Rubin Observatory
Data Management

Bibliography Verification

Automated Content

LSST-test

Latest Revision: 2026-03-31



Abstract

Standard LSST document class example but using all bibtex entries. This allows the bib files to be tested as well as the associated bibtex style.



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Bibliography Verification

1 Introduction

In the following pages, all bibliographic entries from this repository will be listed. These are used to test that the entries in the relevant .bib files are formatted correctly. Bibtex will issue Warnings but the build will only be stopped if Errors are located.

Test the standard references to baseline documents: (SRD), DPDD, LSR, OSS, DMSR, LDM-133, LDM-134, SUID, DMSD, MOPSD, DMMD, DM OpsCon, (LSE-63), LSE-180, UCAL.

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\citedsp: [LPM-17]
\citedsp[]: [Verify] [Requirements]
\citeds: (SRD; LPM-17, LSE-29)
\citeds[]: LDM-503
\citep[]{}: [e.g., 929, 409, are interesting]
\cite: [929, 409]
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References

- [1] **[PSTN-043]**, 2019, *Performance Verification of the LSST Survey Scheduler*, Project Science Technical Note PSTN-043, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-043.lsst.io/>
- [2] **[PSTN-046]**, 2020, *Vera C. Rubin Observatory LSST Camera Design and Delivered Performance*, Project Science Technical Note PSTN-046, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-046.lsst.io/>
- [3] Abazajian, K., Adelman-McCarthy, J.K., Agüeros, M.A., et al., 2004, *AJ*, 128, 502 (arXiv:astro-ph/0403325), doi:10.1086/421365, ADS Link
- [4] Abazajian, K.N., Adelman-McCarthy, J.K., Agüeros, M.A., et al., 2009, *ApJS*, 182, 543 (arXiv:0812.0649), doi:10.1088/0067-0049/182/2/543, ADS Link
- [5] Abbott, T.M.C., Adamów, M., Aguena, M., et al., 2021, *ApJS*, 255, 20 (arXiv:2101.05765), doi:10.3847/1538-4365/ac00b3, ADS Link

- [6] Abrahamse, A., Knox, L., Schmidt, S., et al., 2011, *ApJ*, 734, 36 (arXiv:1011.2239), doi:10.1088/0004-637X/734/1/36, ADS Link
- [7] **[DMTN-337]**, Acero-Cuellar, T., 2026, *Performance of Machine-Learned Reliability Scoring for Image Differencing*, Data Management Technical Note DMTN-337, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-337.lsst.io/>
- [8] Ackerman, N., Atherton, T., Avalani, A.R., et al., 2018, arXiv e-prints, arXiv:1804.08406 (arXiv:1804.08406), doi:10.48550/arXiv.1804.08406, ADS Link
- [9] **[RTN-113]**, Adair, C.L., Hunt, S.E., 2026, *Curated SciX Libraries*, Technical Note RTN-113, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-113.lsst.io/>
- [10] **[RTN-042]**, Adamow, M., 2023, *Running BPS on personal HTCondor at USDF*, Technical Note RTN-042, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-042.lsst.io/>
- [11] Adams, A., Avila, K., Heymann, E., et al., 2021, Guide to securing scientific software, URL <https://zenodo.org/record/5777646#.YfSEvmB1C3o>
- [12] **[SITCOMTN-140]**, Adari, P., 2024, *Point vs Extended Object Classification with Blending in Operations Rehearsal 3*, Commissioning Technical Note SITCOMTN-140, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-140.lsst.io/>
- [13] **[SITCOMTN-128]**, Adari, P., von der Linden, A., 2025, *Unrecognized Blends in LSSTComCam Data Preview 1 ECDFS*, Commissioning Technical Note SITCOMTN-128, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-128.lsst.io/>, doi:10.71929/rubin/2570850
- [14] **[SITCOMTN-163]**, Adari, P., von der Linden, A., Zhang, T., et al., 2025, *Source Selection for Abell 360 in LSSTComCam Data Preview 1*, Commissioning Technical Note SITCOMTN-163, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-163.lsst.io/>, doi:10.71929/rubin/2571157
- [15] **[RTN-100]**, Adelman-McCarthy, J.K., Yanny, B.P., Pietrowicz, S.R., et al., 2025, *Milestone: Ops rehearsal for data processing No. 3*, Technical Note RTN-100, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-100.lsst.io/>
- [16] **[RTN-083]**, Aguirre, L.M., Bechtol, K., Blum, B., et al., 2024, *Rubin First Look Public Announcement Strategy*, Technical Note RTN-083, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-083.lsst.io/>
- [17] Ahumada, R., Allende Prieto, C., Almeida, A., et al., 2020, *ApJS*, 249, 3 (arXiv:1912.02905), doi:10.3847/1538-4365/ab929e, ADS Link

- [18] Aihara, H., Armstrong, R., Bickerton, S., et al., 2018, PASJ, 70, S8 (arXiv:1702.08449), doi:10.1093/pasj/psx081, ADS Link
- [19] Aihara, H., AlSayyad, Y., Ando, M., et al., 2022, PASJ, 74, 247 (arXiv:2108.13045), doi:10.1093/pasj/psab122, ADS Link
- [20] Alard, C., Lupton, R.H., 1998, ApJ, 503, 325 (arXiv:astro-ph/9712287), doi:10.1086/305984, ADS Link
- [21] Albrecht, A., Bernstein, G., Cahn, R., et al., 2006, arXiv e-prints, astro-ph/0609591 (arXiv:astro-ph/0609591), doi:10.48550/arXiv.astro-ph/0609591, ADS Link
- [22] Alcock, C., Allsman, R.A., Alves, D., et al., 1999, ApJ, 521, 602 (arXiv:astro-ph/9903215), doi:10.1086/307567, ADS Link
- [23] Allan, A., Denny, R.B., Swinbank, J.D., 2017, arXiv e-prints, arXiv:1709.01264 (arXiv:1709.01264), doi:10.48550/arXiv.1709.01264, ADS Link
- [24] **[DMTN-169]**, Allbery, R., 2020, *A model for Butler registry access control*, Data Management Technical Note DMTN-169, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-169.lsst.io/>
- [25] **[SQR-037]**, Allbery, R., 2020, *SQuaRE security risk assessment*, SQuaRE Technical Note SQR-037, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-037.lsst.io/>
- [26] **[SQR-039]**, Allbery, R., 2020, *Discussion of authentication and authorization for Science Platform*, SQuaRE Technical Note SQR-039, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-039.lsst.io/>
- [27] **[SQR-042]**, Allbery, R., 2020, *Dependency management for SQuaRE services*, SQuaRE Technical Note SQR-042, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-042.lsst.io/>
- [28] **[SQR-044]**, Allbery, R., 2020, *Science Platform identity management requirements*, SQuaRE Technical Note SQR-044, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-044.lsst.io/>
- [29] **[SQR-048]**, Allbery, R., 2020, *Kubernetes hardening recommendations*, SQuaRE Technical Note SQR-048, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-048.lsst.io/>
- [30] **[DMTN-182]**, Allbery, R., 2021, *Possible authorization approaches for Butler*, Data Management Technical Note DMTN-182, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-182.lsst.io/>

- [31] **[RTN-020]**, Allbery, R., 2021, *Security controls for administrative and developer access to IDF infrastructure*, Technical Note RTN-020, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-020.lsst.io/>
- [32] **[SQR-049]**, Allbery, R., 2021, *Science Platform token management design*, SQuaRE Technical Note SQR-049, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-049.lsst.io/>
- [33] **[DMTN-238]**, Allbery, R., 2022, *RSP DataLink service implementation strategy*, Data Management Technical Note DMTN-238, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-238.lsst.io/>
- [34] **[SQR-041]**, Allbery, R., 2022, *Science Platform security risk assessment*, SQuaRE Technical Note SQR-041, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-041.lsst.io/>
- [35] **[SQR-045]**, Allbery, R., 2022, *Evaluation of CILogon CManage for Rubin Science Platform*, SQuaRE Technical Note SQR-045, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-045.lsst.io/>
- [36] **[SQR-046]**, Allbery, R., 2022, *Evaluation of GitHub for Rubin Science Platform identity management*, SQuaRE Technical Note SQR-046, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-046.lsst.io/>
- [37] **[SQR-071]**, Allbery, R., 2022, *RSP user impersonation*, SQuaRE Technical Note SQR-071, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-071.lsst.io/>
- [38] **[SQR-063]**, Allbery, R., 2023, *IVOA SODA implementation experience*, SQuaRE Technical Note SQR-063, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-063.lsst.io/>
- [39] **[SQR-074]**, Allbery, R., 2023, *Validation of new Phalanx deployments*, SQuaRE Technical Note SQR-074, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-074.lsst.io/>
- [40] **[SQR-077]**, Allbery, R., 2023, *Considerations for Python API documentation*, SQuaRE Technical Note SQR-077, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-077.lsst.io/>
- [41] **[SQR-079]**, Allbery, R., 2023, *Secrets management for Phalanx*, SQuaRE Technical Note SQR-079, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-079.lsst.io/>
- [42] **[DMTN-208]**, Allbery, R., 2024, *RSP image cutout service implementation strategy*, Data Management Technical Note DMTN-208, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-208.lsst.io/>

- [43] **[DMTN-253]**, Allbery, R., 2024, *Science Platform authentication for IDAC users*, Data Management Technical Note DMTN-253, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-253.lsst.io/>
- [44] **[SQR-072]**, Allbery, R., 2024, *One design pattern for FastAPI web applications*, SQuaRE Technical Note SQR-072, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-072.lsst.io/>
- [45] **[SQR-091]**, Allbery, R., 2024, *Draft IVOA web service standards framework*, SQuaRE Technical Note SQR-091, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-091.lsst.io/>
- [46] **[SQR-092]**, Allbery, R., 2024, *Draft IVOA JSON encoding*, SQuaRE Technical Note SQR-092, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-092.lsst.io/>
- [47] **[SQR-093]**, Allbery, R., 2024, *Draft IVOA SODA web service specification*, SQuaRE Technical Note SQR-093, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-093.lsst.io/>
- [48] **[SQR-096]**, Allbery, R., 2024, *UWS data service*, SQuaRE Technical Note SQR-096, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-096.lsst.io/>
- [49] **[DMTN-193]**, Allbery, R., 2025, *Web security for the Science Platform*, Data Management Technical Note DMTN-193, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-193.lsst.io/>
- [50] **[DMTN-224]**, Allbery, R., 2025, *RSP identity management implementation strategy*, Data Management Technical Note DMTN-224, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-224.lsst.io/>
- [51] **[DMTN-225]**, Allbery, R., 2025, *User metadata for the Science Platform*, Data Management Technical Note DMTN-225, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-225.lsst.io/>
- [52] **[DMTN-230]**, Allbery, R., 2025, *RSP HiPS service implementation strategy*, Data Management Technical Note DMTN-230, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-230.lsst.io/>
- [53] **[DMTN-234]**, Allbery, R., 2025, *RSP identity management design*, Data Management Technical Note DMTN-234, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-234.lsst.io/>
- [54] **[DMTN-235]**, Allbery, R., 2025, *Token scopes for the Rubin Science Platform*, Data Management Technical Note DMTN-235, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-235.lsst.io/>

- [55] **[DMTN-250]**, Allbery, R., 2025, *Discovery services for the Rubin Science Platform*, Data Management Technical Note DMTN-250, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-250.lsst.io/>
- [56] **[SQR-051]**, Allbery, R., 2025, *Leaks of credentials to services in the Rubin Science Platform*, SQuaRE Technical Note SQR-051, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-051.lsst.io/>
- [57] **[SQR-055]**, Allbery, R., 2025, *COmanage configuration for Rubin Science Platform*, SQuaRE Technical Note SQR-055, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-055.lsst.io/>
- [58] **[SQR-069]**, Allbery, R., 2025, *Implementation decisions for RSP identity management*, SQuaRE Technical Note SQR-069, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-069.lsst.io/>
- [59] **[SQR-073]**, Allbery, R., 2025, *RSP quotas and rate limiting*, SQuaRE Technical Note SQR-073, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-073.lsst.io/>
- [60] **[SQR-111]**, Allbery, R., Fuchs, D.C., 2026, *Gateway migration for Gafaelfawr*, SQuaRE Technical Note SQR-111, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-111.lsst.io/>
- [61] **[SQR-066]**, Allbery, R., Thornton, A., 2023, *RSP Notebook Aspect lab controller design*, SQuaRE Technical Note SQR-066, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-066.lsst.io/>
- [62] **[DMTN-163]**, Allbery, R., Lim, K.T., Economou, F., O'Mullane, W., 2021, *Encryption of Rubin Observatory data*, Data Management Technical Note DMTN-163, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-163.lsst.io/>
- [63] Allende Prieto, C., 2007, A], 134, 1843 (arXiv:0707.2764), doi:10.1086/522051, ADS Link
- [64] **[LSE-16]**, Allsman, R., Dubois-Felsmann, G., Kantor, J., 2009, *LSST Software Development Plan*, Systems Engineering Controlled Document LSE-16, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-16>
- [65] **[DMTN-080]**, AlSayyad, Y., 2018, *Coaddition Artifact Rejection and CompareWarp*, Data Management Technical Note DMTN-080, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-080.lsst.io/>, doi:10.71929/rubin/2583441

- [66] **[DMTR-302]**, AlSayyad, Y., 2021, *LDM-503-13a: Science Pipelines Fall 2020 Release Test Plan and Report*, Data Management Test Report DMTR-302, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-302.lsst.io/>
- [67] **[DMTR-321]**, AlSayyad, Y., 2022, *LDM-503-15a: Science Pipelines Fall 2021 Release Test Plan and Report*, Data Management Test Report DMTR-321, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-321.lsst.io/>
- [68] **[DMTR-411]**, AlSayyad, Y., 2023, *LDM-503-16a: Science Pipelines Fall 2022 Release Test Plan Test Plan and Report*, Data Management Test Report DMTR-411, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-411.lsst.io/>
- [69] **[DMTR-481]**, AlSayyad, Y., 2025, *LDM-503-17a: Science Pipelines Final Release Test Plan and Report*, Data Management Test Report DMTR-481, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-481.lsst.io/>
- [70] **[RTN-111]**, AlSayyad, Y., O'Mullane, W., 2026, *Data Preview 2: Definition and planning*, Technical Note RTN-111, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-111.lsst.io/>
- [71] AlSayyad, Y., Connolly, A.J., Becker, A.C., et al., 2013, In: American Astronomical Society Meeting Abstracts #221, vol. 221 of American Astronomical Society Meeting Abstracts, 152.02, ADS Link
- [72] AlSayyad, Y., McGreer, I., Connolly, A., et al., 2015, Case study: Classifying high red-shift quasars on the lsst-reprocessed sdss stripe 82 imaging, URL <http://www.noao.edu/meetings/bigdata/files/AlSayyad.pdf>, Presented at Tools for Astronomical Big Data, Tucson, AZ
- [73] **[DMTN-126]**, AlSayyad, Y., Daniel, S., Dubois-Felsmann, G., et al., 2020, *Image Display Working Group Report*, Data Management Technical Note DMTN-126, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-126.lsst.io/>
- [74] **[RTN-063]**, AlSayyad, Y., Adelman-McCarthy, J., Yanny, B., et al., 2023, *HSC PDR2 Reprocessing and Operations Rehearsal for DRP*, Technical Note RTN-063, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-063.lsst.io/>
- [75] **[DMTN-313]**, AlSayyad, Y., Chiang, H.F., Chiang, J., Slater, C.T., 2025, *Report from Operations Rehearsal 5*, Data Management Technical Note DMTN-313, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-313.lsst.io/>

- [76] Amaro-Seoane, P., Aoudia, S., Babak, S., et al., 2013, *GW Notes*, 6, 4 (arXiv:1201.3621), doi:10.48550/arXiv.1201.3621, ADS Link
- [77] Amazon, Amazon Glacier – Cloud Archive, URL <https://aws.amazon.com/glacier/>
- [78] Angeli, F.D., 2005, *The Gaia Software Toolbox - User guide*, Tech. rep., IoA, URL http://www.rssd.esa.int/SA-general/Projects/GAIA/wiki/index.php?title=CU1:_GaiaTools
- [79] **[LSE-159]**, Angeli, G., 2013, *Reviews Definitions, Guidelines, and Procedures*, Systems Engineering Controlled Document LSE-159, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-159>
- [80] **[Document-11920]**, Angeli, G., McKercher, R., 2013, *Document Cover Page and Style Guide*, Informal Construction Document Document-11920, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-11920>
- [81] **[Document-9224]**, Angeli, G., McKercher, R., 2013, *Change Controlled Document Cover Page and Style Guide*, Informal Construction Document Document-9224, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-9224>
- [82] **[LPM-19]**, Angeli, G., McKercher, R., 2015, *Change Control Process*, Project Controlled Document LPM-19, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-19>
- [83] Angeli, G.Z., Xin, B., Claver, C., et al., 2014, In: Angeli, G.Z., Dierickx, P. (eds.) *Modeling, Systems Engineering, and Project Management for Astronomy VI*, vol. 9150 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 91500H, doi:10.1117/12.2055390, ADS Link
- [84] Angeli, G.Z., Xin, B., Claver, C., et al., 2016, In: Angeli, G.Z., Dierickx, P. (eds.) *Modeling, Systems Engineering, and Project Management for Astronomy VI*, vol. 9911 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 991118, doi:10.1117/12.2234078, ADS Link
- [85] Ansari, S., Torra, J., López, P.P., et al., *Algorithm Interface Control Document*, CCB-GDAAS-ICD-001
- [86] Ansari, S.G., Torra, J., Luri, X., et al., 2003, In: Munari, U. (ed.) *GAIA Spectroscopy: Science and Technology*, vol. 298 of Astronomical Society of the Pacific Conference Series, 97, ADS Link
- [87] Ansari, S.G., Lammers, U., ter Linden, M., 2005, In: *Proc. Astronomical Data Analysis Software and Systems XIV*, vol. 347, 429–, Astronomical Society of the Pacific

- [88] Ansel, J., Yang, E., He, H., et al., 2024, In: 29th ACM International Conference on Architectural Support for Programming Languages and Operating Systems, Volume 2 (ASPLOS '24), ACM, URL <https://pytorch.org/assets/pytorch2-2.pdf>, doi:10.1145/3620665.3640366
- [89] Antilogus, P., Astier, P., Doherty, P., Guyonnet, A., Regnault, N., 2014, *Journal of Instrumentation*, 9, C03048 (arXiv:1402.0725), doi:10.1088/1748-0221/9/03/C03048, ADS Link
- [90] **[DMTR-82]**, Arcanjo, V., Astudillo, A., Bezerra, J., et al., 2018, *Network Bandwidth Tests between Chile and the United States*, Data Management Test Report DMTR-82, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/DMTR-82>
- [91] Arenou, F., Chéreau, F.,
private communication
- [92] Arenou, F., Lindegren, L., Froeschle, M., et al., 1995, *A&A*, 304, 52, ADS Link
- [93] Astier, P., Antilogus, P., Juramy, C., et al., 2019, *A&A*, 629, A36 (arXiv:1905.08677), doi:10.1051/0004-6361/201935508, ADS Link
- [94] Astropy Collaboration, Robitaille, T.P., Tollerud, E.J., et al., 2013, *A&A*, 558, A33 (arXiv:1307.6212), doi:10.1051/0004-6361/201322068, ADS Link
- [95] Astropy Collaboration, Price-Whelan, A.M., Sipócz, B.M., et al., 2018, *AJ*, 156, 123 (arXiv:1801.02634), doi:10.3847/1538-3881/aabc4f, ADS Link
- [96] Astropy Collaboration, Price-Whelan, A.M., Lim, P.L., et al., 2022, *ApJ*, 935, 167 (arXiv:2206.14220), doi:10.3847/1538-4357/ac7c74, ADS Link
- [97] Auer, L.H., Standish, E.M., 2000, *AJ*, 119, 2472, doi:10.1086/301325, ADS Link
- [98] **[RDO-141]**, Author, F., 2025, *Rubin Data and Information Security Plan*, Data Management Operations Controlled Document RDO-141, NSF-DOE Vera C. Rubin Observatory, URL <https://rdo-141.lsst.io/>
- [99] Axelrod, T., 2005, Events in the LSST, URL http://wiki.ivoa.net/internal/IVOA/VOEventSchedule/tim_axelrod.ppt,
Presented at the IVOA VOEvent Workshop, Pasadena
- [100] Axelrod, T., 2007, In: Babu, G.J., Feigelson, E.D. (eds.) *Statistical Challenges in Modern Astronomy IV*, vol. 371 of *Astronomical Society of the Pacific Conference Series*, 142, ADS Link

- [101] Axelrod, T., Kantor, J., 2010, In: Supercomputing 2010, LSST Corporation, Supercomputing Conference, URL <https://docushare.lsstcorp.org/docushare/dsweb/Get/Document-10284/>
- [102] Axelrod, T., Connolly, A., Ivezić, Z., et al., 2004, In: American Astronomical Society Meeting Abstracts, vol. 205 of American Astronomical Society Meeting Abstracts, 108.11, ADS Link
- [103] Axelrod, T., Becker, A., Connolly, A., et al., 2005, In: American Astronomical Society Meeting Abstracts, vol. 207 of American Astronomical Society Meeting Abstracts, 26.30, ADS Link
- [104] **[Document-5356]**, Axelrod, T., Allsman, R., Kantor, J., et al., 2008, *LSST Data Challenge 2*, Informal Construction Document Document-5356, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-5356>
- [105] Axelrod, T., Kantor, J., Lupton, R.H., Pierfederici, F., 2010, In: Radziwill, N.M., Bridger, A. (eds.) *Software and Cyberinfrastructure for Astronomy*, vol. 7740 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 774015, doi:10.1117/12.857297, ADS Link
- [106] **[LDM-17]**, Axelrod, T., et al., 2009, *LSST Data Challenge 3a Final Report*, Data Management Controlled Document LDM-17, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-17>
- [107] Axelrod, T.S., 2006, In: Gabriel, C., Arviset, C., Ponz, D., Enrique, S. (eds.) *Astronomical Data Analysis Software and Systems XV*, vol. 351 of Astronomical Society of the Pacific Conference Series, 103, ADS Link
- [108] Axelrod, T.S., Allsman, R., Becker, A., et al., 2006, In: American Astronomical Society Meeting Abstracts, vol. 209 of American Astronomical Society Meeting Abstracts, 86.07, ADS Link
- [109] Axelrod, T.S., Becla, J., Connolly, A., et al., 2007, In: American Astronomical Society Meeting Abstracts, vol. 211 of American Astronomical Society Meeting Abstracts, 137.26, ADS Link
- [110] Axelrod, T.S., Becker, A., Becla, J., et al., 2009, In: American Astronomical Society Meeting Abstracts #213, vol. 213 of American Astronomical Society Meeting Abstracts, 460.30, ADS Link

- [111] Baccaro, S., Cecilia, A., Di Sarcina, I., Piegari, A.M., 2004, In: Atad-Ettinger, E., Dierickx, P. (eds.) *Optical Fabrication, Metrology, and Material Advancements for Telescopes*, vol. 5494 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 529–535, doi:10.1117/12.553602, ADS Link
- [112] Baccaro, S., Piegari, A., Di Sarcina, I., Cecilia, A., 2005, *IEEE transactions on nuclear science*, 52, 1779
- [113] Bailer-Jones, C.A.L., 2002, *Ap&SS*, 280, 21 (arXiv:astro-ph/0201014), doi:10.1023/A:1015527705755, ADS Link
- [114] Bailer-Jones, C.A.L., 2003, In: Munari, U. (ed.) *GAIA Spectroscopy: Science and Technology*, vol. 298 of Astronomical Society of the Pacific Conference Series, 199, ADS Link
- [115] Bailer-Jones, C.A.L., 2004, *A&A*, 419, 385 (arXiv:astro-ph/0402591), doi:10.1051/0004-6361:20035779, ADS Link
- [116] Bailer-Jones, C.A.L., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special Publication, 393 (arXiv:astro-ph/0502097), doi:10.48550/arXiv.astro-ph/0502097, ADS Link
- [117] Bailer-Jones, C.A.L., 2010, *MNRAS*, 403, 96 (arXiv:0911.5242), doi:10.1111/j.1365-2966.2009.16125.x, ADS Link
- [118] Bailer-Jones, C.A.L., Andrae, R., Arcay, B., et al., 2013, *A&A*, 559, A74 (arXiv:1309.2157), doi:10.1051/0004-6361/201322344, ADS Link
- [119] **[DMTN-090]**, Banek, C., 2019, *DAX Webservice Implementation Guide*, Data Management Technical Note DMTN-090, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-090.lsst.io/>
- [120] **[DMTN-164]**, Banek, C., 2020, *Nublado v2 Architecture*, Data Management Technical Note DMTN-164, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-164.lsst.io/>
- [121] **[DMTN-264]**, Banek, C., 2023, *TAP - IVOA Table Access Protocol service*, Data Management Technical Note DMTN-264, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-264.lsst.io/>
- [122] **[DMTN-267]**, Banek, C., 2023, *TAP UPLOAD: How it works in the CADM TAP Service*, Data Management Technical Note DMTN-267, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-267.lsst.io/>

- [123] **[DMTN-279]**, Banek, C., 2024, *Organization of Phalanx into projects*, Data Management Technical Note DMTN-279, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-279.lsst.io/>
- [124] **[DMTN-245]**, Banovetz, J., 2023, *Long Term Variability of AuxTel/LATISS Edge of Amplifier Banding in Bias Images*, Data Management Technical Note DMTN-245, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-245.lsst.io/>
- [125] **[DMTN-276]**, Banovetz, J., Utsumi, Y., Slater, C., 2024, *Effects of Persistence on E2V Sensors and its Impacts on DC2 Data*, Data Management Technical Note DMTN-276, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-276.lsst.io/>
- [126] Barisits, M., Beermann, T., Berghaus, F., et al., 2019, *Computing and Software for Big Science*, 3, 11 (arXiv:1902.09857), doi:10.1007/s41781-019-0026-3, ADS Link
- [127] **[PSTN-005]**, Barr, J.D., 2019, *Overview of the LSST Telescope*, Project Science Technical Note PSTN-005, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-005.lsst.io/>
- [128] **[ITTN-064]**, Barría, C., 2022, *OS Update Playbook*, Information Technology Technical Note ITTN-064, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-064.lsst.io/>
- [129] **[ITTN-071]**, Barría, C., 2023, *rke Update Playbook*, Information Technology Technical Note ITTN-071, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-071.lsst.io/>
- [130] Bastian, U., Biermann, M., 2005, *A&A*, 438, 745, doi:10.1051/0004-6361:20042372, ADS Link
- [131] Bastian, U., Gilmore, G., Halbwegs, J., et al., 1993, *ROEMER*, Tech. rep., Lund Observatory, Proposal for a Third Medium Size ESA Mission (M3), Lund 1993
- [132] **[PSTN-031]**, Bauer, A.E., 2019, *LSST EPO: The User Feedback*, Project Science Technical Note PSTN-031, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-031.lsst.io/>
- [133] **[PSTN-029]**, Bauer, A.E., 2020, *The Vera C. Rubin Observatory Education and Public Outreach Program*, Project Science Technical Note PSTN-029, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-029.lsst.io/>
- [134] **[LEP-031]**, Bauer, A.E., The LSST EPO Team, 2018, *LSST EPO Design*, Education and Public Outreach Controlled Document LEP-031, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LEP-031>

- [135] Bauer, A.E., Bellm, E.C., Bolton, A.S., et al., 2019, arXiv e-prints, arXiv:1905.05116 (arXiv:1905.05116), doi:10.48550/arXiv.1905.05116, ADS Link
- [136] Baumann, M., Boch, T., Pineau, F.X., et al., 2022, In: Ruiz, J.E., Pierfederici, F., Teuben, P. (eds.) *Astronomical Data Analysis Software and Systems XXX*, vol. 532 of *Astronomical Society of the Pacific Conference Series*, 7, ADS Link
- [137] Beaumont, C., Goodman, A., Greenfield, P., 2015, In: Taylor, A.R., Rosolowsky, E. (eds.) *Astronomical Data Analysis Software and Systems XXIV (ADASS XXIV)*, vol. 495 of *Astronomical Society of the Pacific Conference Series*, 101, ADS Link
- [138] **[LSE-389]**, Bechtol, K., 2018, *Commissioning Science Validation Test Plan*, Systems Engineering Controlled Document LSE-389, NSF-DOE Vera C. Rubin Observatory, URL <https://lse-389.lsst.io/>
- [139] **[LSE-419]**, Bechtol, K., 2019, *Commissioning Science Verification Test Specification*, Systems Engineering Controlled Document LSE-419, NSF-DOE Vera C. Rubin Observatory, URL <https://lse-419.lsst.io/>
- [140] **[PSTN-039]**, Bechtol, K., 2020, *Science Validation of LSST Data Release Processing*, Project Science Technical Note PSTN-039, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-039.lsst.io/>
- [141] **[SITCOMTN-075]**, Bechtol, K., 2023, *System On-sky Test Plan*, Commissioning Technical Note SITCOMTN-075, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-075.lsst.io/>
- [142] **[SITCOMTN-050]**, Bechtol, K., 2025, *Summary of In-Kind Contributions to Rubin Observatory System Integration, Test, and Commissioning Efforts*, Commissioning Technical Note SITCOMTN-050, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-050.lsst.io/>
- [143] **[SITCOMTN-157]**, Bechtol, K., 2025, *Science Verification workflow*, Commissioning Technical Note SITCOMTN-157, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-157.lsst.io/>
- [144] **[SITCOMTN-170]**, Bechtol, K., 2025, *An Interim Report on the On-Sky Commissioning Campaign with LSSTCam*, Commissioning Technical Note SITCOMTN-170, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-170.lsst.io/>
- [145] **[SITCOMTN-076]**, Bechtol, K., Ritz, S., 2025, *Information Sharing during Commissioning*, Commissioning Technical Note SITCOMTN-076, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-076.lsst.io/>

- [146] **[DMTN-141]**, Bechtol, K., Carlin, J., Krughoff, S., 2020, *Design concepts for the SV-distiller*, Data Management Technical Note DMTN-141, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-141.lsst.io/>
- [147] **[SITCOMTN-010]**, Bechtol, K., Claver, C., System Integration Test and Commissioning Team, Project Science Team, 2021, *Announcement of Opportunity: Community Engagement with Rubin Observatory Commissioning Effort*, Commissioning Technical Note SITCOMTN-010, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-010.lsst.io/>
- [148] **[SITCOMTN-025]**, Bechtol, K., Ingraham, P., Jenness, T., et al., 2022, *First-Look Analysis and Feedback Functionality Breakout Group Report*, Commissioning Technical Note SITCOMTN-025, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-025.lsst.io/>
- [149] **[SITCOMTN-037]**, Bechtol, K., Dubois-Felsmann, G., Fausti, A., et al., 2023, *First-Look Analysis and Feedback Functionality Breakout Group Report #2*, Commissioning Technical Note SITCOMTN-037, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-037.lsst.io/>
- [150] **[SITCOMTN-061]**, Bechtol, K., Alexov, A., Claver, C., et al., 2024, *System First Light Definition*, Commissioning Technical Note SITCOMTN-061, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-061.lsst.io/>
- [151] Bechtol, K., Sevilla-Noarbe, I., Drlica-Wagner, A., et al., 2025, arXiv e-prints, arXiv:2501.05739 (arXiv:2501.05739), doi:10.48550/arXiv.2501.05739, ADS Link
- [152] Beck, K., 1999, *Extreme Programming Explained: Embrace Change*, Addison-Wesley, 1st edn.
- [153] Beck, R., Dobos, L., Budavári, T., Szalay, A.S., Csabai, I., 2016, MNRAS, 460, 1371 (arXiv:1603.09708), doi:10.1093/mnras/stw1009, ADS Link
- [154] Becker, A., 2007, Transient object detection and classification, URL <http://wiki.ivoa.net/twiki/bin/view/IVOA/HotwiredWorkshop>, Hot-wiring the Transient Universe: a Joint VOEvent & HTN Workshop June 4 - 7, 2007, Tucson, Arizona
- [155] Becker, A., 2014, Flexible and Scalable Methods for Time-Series Characterization, URL <http://eventos.cmm.uchile.cl/astro2014/wp-content/uploads/sites/13/2014/06/Astroinformatics2014.pdf>, Astroinformatics 2014, Chile

- [156] Becker, A., Axelrod, T., Ivezić, Z., et al., 2005, In: American Astronomical Society Meeting Abstracts, vol. 207 of American Astronomical Society Meeting Abstracts, 26.29, ADS Link
- [157] **[LDM-227]**, Becker, A., Krughoff, S., Connolly, A., et al., 2013, *Report on Late Winter 2013 Production: Image Differencing*, Data Management Controlled Document LDM-227, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-227>
- [158] **[DMTN-069]**, Becker, A., Krughoff, S., Connolly, A., 2014, *Report on Winter 2014 Production: Image Differencing*, Data Management Technical Note DMTN-069, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-069.lsst.io/>
- [159] **[DMTN-070]**, Becker, A., Krughoff, S., Connolly, A., 2014, *Report on Summer 2014 Production: Analysis of DCR*, Data Management Technical Note DMTN-070, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-070.lsst.io/>
- [160] **[Document-11013]**, Becker, A., et al., 2011, *Science White Paper for LSST Deep-Drilling Field Observations Opportunities for Solar System Science*, Informal Construction Document Document-11013, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-11013>
- [161] Becker, A.C., Rest, A., Miknaitis, G., Smith, R.C., Stubbs, C., 2004, In: American Astronomical Society Meeting Abstracts, vol. 205 of American Astronomical Society Meeting Abstracts, 108.12, ADS Link
- [162] Becker, A.C., Silvestri, N.M., Owen, R.E., Ivezić, Ž., Lupton, R.H., 2007, PASP, 119, 1462 (arXiv:0712.0637), doi:10.1086/524710, ADS Link
- [163] Becker, A.C., Silvestri, N., Owen, R., et al., 2009, In: American Astronomical Society Meeting Abstracts #213, vol. 213 of American Astronomical Society Meeting Abstracts, 460.28, ADS Link
- [164] Becker, A.C., Bloom, J.S., Walkowicz, L.M., LSST Collaboration, 2011, In: American Astronomical Society Meeting Abstracts #217, vol. 217 of American Astronomical Society Meeting Abstracts, 252.12, ADS Link
- [165] **[Document-1386]**, Becla, J., 2006, *Database Ingest Tests*, Informal Construction Document Document-1386, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-1386>
- [166] Becla, J., 2009, Scidb: Open source data management system for data-intensive scientific analytics, URL <http://www.slideshare.net/sdsc/>

scidb-open-source-data-management-system-for-dataintensive-scientific-analytics,
Talk at San Diego Supercomputer Center

- [167] **[Document-8256]**, Becla, J., 2009, *Evaluation of Database Solutions*, Informal Construction Document Document-8256, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-8256>
- [168] Becla, J., 2010, In: *Astronomical Data Analysis Software and Systems XX*, ADASS XX, SLAC National Accelerator Laboratory
- [169] **[DMTR-12]**, Becla, J., 2013, *Qserv 300 node test*, Data Management Test Report DMTR-12, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/DMTR-12>
- [170] Becla, J., 2014, In: Taylor, A.R., Rosolowsky, E. (eds.) *Astronomical Data Analysis Software and Systems XXIV (ADASS XXIV)*, Astronomical Society of the Pacific Conference Series
- [171] Becla, J., 2015, *Enabling scalable data analytics for lsst and beyond through qserv*, URL <http://www.noao.edu/meetings/bigdata/files/becla.pdf>, Presented at Tools for Astronomical Big Data, Tucson, AZ
- [172] **[DMTR-13]**, Becla, J., 2015, *Qserv Summer 15 Large Scale Tests*, Data Management Test Report DMTR-13, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/DMTR-13>
- [173] **[DMTN-083]**, Becla, J., 2016, *LSST DM Metadata and Provenance*, Data Management Technical Note DMTN-083, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-083.lsst.io/>
- [174] **[LDM-555]**, Becla, J., 2017, *Data Management Database Requirements*, Data Management Controlled Document LDM-555, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-555.lsst.io/>
- [175] Becla, J., Lim, K.T., 2008, *Data Science Journal*, 7, doi:10.2481/dsj.7.1
- [176] Becla, J., Lim, K.T., 2008, *Data Science Journal*, 7, doi:10.2481/dsj.7.88
- [177] **[LDM-139]**, Becla, J., Lim, K.T., 2013, *Data Management Storage Sizing and I/O Model Explanation*, Data Management Controlled Document LDM-139, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-139>
- [178] **[LDM-141]**, Becla, J., Lim, K.T., 2013, *Data Management Storage Sizing and I/O Model*, Data Management Controlled Document LDM-141, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-141>

- [179] **[LDM-463]**, Becla, J., Pease, N., 2017, *Data Access Design*, Data Management Controlled Document LDM-463, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-463>
- [180] Becla, J., Wang, D.L., 2005, In: CIDR 2005, Second Biennial Conference on Innovative Data Systems Research, Asilomar, CA, USA, January 4-7, 2005, Online Proceedings, 70–83, URL <http://cidrdb.org/cidr2005/papers/P06.pdf>
- [181] Becla, J., Wang, D.L., 2014, In: Exascale Radio Astronomy, vol. 2, 30303, ADS Link
- [182] Becla, J., Nikolaev, S., Abdulla, G., et al., 2005, In: American Astronomical Society Meeting Abstracts, vol. 207 of American Astronomical Society Meeting Abstracts, 26.33, ADS Link
- [183] Becla, J., Hanushevsky, A., Nikolaev, S., et al., 2006, In: Silva, D.R., Doxsey, R.E. (eds.) *Observatory Operations: Strategies, Processes, and Systems*, vol. 6270 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 62700R (arXiv:cs/0604112), doi:10.1117/12.671721, ADS Link
- [184] Becla, J., Lim, K.T., Monkewitz, S., Nieto-Santisteban, M., Thakar, A., 2008, In: Argyle, R.W., Bunclark, P.S., Lewis, J.R. (eds.) *Astronomical Data Analysis Software and Systems XVII*, vol. 394 of Astronomical Society of the Pacific Conference Series, 114, ADS Link
- [185] Becla, J., Lim, K.T., Wang, D.L., 2010, *Data Science Journal*, 8, MR1, doi:10.2481/dsj.xldb09
- [186] **[Document-11625]**, Becla, J., Lim, K.T., Wang, D., 2011, *Database Architecture*, Informal Construction Document Document-11625, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-11625>
- [187] **[Document-11701]**, Becla, J., Lim, K.T., Wang, D., 2011, *Evaluation of Solid State Disks*, Informal Construction Document Document-11701, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-11701>
- [188] Becla, J., Lim, K.T., Wang, D.L., 2012, Facts about xldb-2011, URL <http://www.osti.gov/scitech/biblio/1035489/>
- [189] **[DMTN-046]**, Becla, J., Lim, K.T., Wang, D., 2013, *An investigation of database technologies*, Data Management Technical Note DMTN-046, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-046.lsst.io/>
- [190] **[DMTN-048]**, Becla, J., Lim, K.T., Wang, D., 2013, *Qserv design prototyping experiments*, Data Management Technical Note DMTN-048, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-048.lsst.io/>

- [191] **[DMTR-21]**, Becla, J., Lim, K.T., Wang, D., 2013, *Early (pre-2013) Large-Scale Qserv Tests*, Data Management Test Report DMTR-21, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/DMTR-21>
- [192] **[Document-26276]**, Becla, J., Lim, K.T., Wang, D., 2013, *Scalable Partitioning*, Informal Construction Document Document-26276, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-26276>
- [193] **[LDM-472]**, Becla, J., Economou, F., Mueller, F., et al., 2017, *LSST DM Project Management and Tools*, Data Management Controlled Document LDM-472, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-472.lsst.io/>
- [194] **[LDM-135]**, Becla, J., Wang, D., Monkewitz, S., et al., 2017, *Data Management Database Design*, Data Management Controlled Document LDM-135, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-135.lsst.io/>
- [195] **[DMTN-020]**, Becla, J., Economou, F., Gelman, M., et al., 2018, *Data Management Project Management Guide*, Data Management Technical Note DMTN-020, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-020.lsst.io/>
- [196] Bektesevic, D., Mehta, P., Juric, M., et al., 2019, In: American Astronomical Society Meeting Abstracts #233, vol. 233 of American Astronomical Society Meeting Abstracts, 245.05, ADS Link
- [197] Beletic, J.W., Blank, R., Gulbransen, D., et al., 2008, In: Dorn, D.A., Holland, A.D. (eds.) High Energy, Optical, and Infrared Detectors for Astronomy III, vol. 7021 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 70210H, doi:10.1117/12.790382, ADS Link
- [198] **[DMTR-91]**, Bellm, E., 2019, *LDM-503-5: (Alert Distribution Validation) Test Plan and Report*, Data Management Test Report DMTR-91, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-91.lsst.io/>
- [199] **[DMTN-200]**, Bellm, E., 2023, *Fluxes of variables in difference imaging*, Data Management Technical Note DMTN-200, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-200.lsst.io/>
- [200] **[DMTN-259]**, Bellm, E., 2023, *Mechanisms for Deprecating Bad Data in Alert Production*, Data Management Technical Note DMTN-259, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-259.lsst.io/>

- [201] **[RTN-010]**, Bellm, E., 2023, *Pre-operations Alert Distribution Integration Exercises*, Technical Note RTN-010, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-010.lsst.io/>
- [202] **[RTN-061]**, Bellm, E., 2023, *Planning for the First Public Release of LSSTCam Alerts*, Technical Note RTN-061, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-061.lsst.io/>
- [203] **[LDM-682]**, Bellm, E., Blum, R., Graham, M., et al., 2019, *Call for Letters of Intent for Community Alert Brokers*, Data Management Controlled Document LDM-682, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-682.lsst.io/>
- [204] **[LDM-612]**, Bellm, E., Blum, R., Graham, M., et al., 2020, *Plans and Policies for LSST Alert Distribution*, Data Management Controlled Document LDM-612, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-612.lsst.io/>, doi:10.71929/rubin/2998139
- [205] **[LDM-723]**, Bellm, E., Blum, R., Graham, M., et al., 2020, *Call for Proposals for Community Alert Brokers*, Data Management Controlled Document LDM-723, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-723.lsst.io/>
- [206] **[RDO-061]**, Bellm, E., Blum, R., Guy, L., 2021, *Community Alert Broker MoU*, Data Management Operations Controlled Document RDO-061, NSF-DOE Vera C. Rubin Observatory, URL <https://rdo-061.lsst.io/>
- [207] **[DMTN-228]**, Bellm, E., Graham, M., Guy, L., The DM System Science Team, 2023, *Measurement of Faint DIASources in LSST Prompt Processing*, Data Management Technical Note DMTN-228, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-228.lsst.io/>
- [208] **[PSTN-021]**, Bellm, E.C., 2019, *LSST Prompt Data Products*, Project Science Technical Note PSTN-021, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-021.lsst.io/>
- [209] **[DMTN-118]**, Bellm, E.C., 2021, *Review of Timeseries Features*, Data Management Technical Note DMTN-118, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-118.lsst.io/>, doi:10.71929/rubin/2997999
- [210] **[RTN-008]**, Bellm, E.C., 2022, *Rubin Observatory Processing of Gravitational Wave TOO Data in the Early Operations Era*, Technical Note RTN-008, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-008.lsst.io/>, doi:10.71929/rubin/2997564
- [211] **[DMTN-315]**, Bellm, E.C., 2025, *Assessment of Cosmic Ray Rejection for Image Differencing*, Data Management Technical Note DMTN-315, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-315.lsst.io/>

- [212] **[DMTN-226]**, Bellm, E.C., Guy, L., 2024, *Implementing the Rubin/LSST Alert Filtering System with ANTARES*, Data Management Technical Note DMTN-226, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-226.lsst.io/>
- [213] **[DMTN-165]**, Bellm, E.C., Nelson, S., 2020, *A Hybrid Notification and Alert Retrieval Service*, Data Management Technical Note DMTN-165, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-165.lsst.io/>, doi:10.71929/rubin/2998002
- [214] **[DMTR-53]**, Bellm, E.C., Swinbank, J.D., 2018, *LDM-503-3 (Alert Generation) Test Report*, Data Management Test Report DMTR-53, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-53.lsst.io/>
- [215] **[LDM-533]**, Bellm, E.C., Swinbank, J.D., 2019, *LSST Level 1 System Test Specification*, Data Management Controlled Document LDM-533, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-533.lsst.io/>
- [216] **[DMTN-085]**, Bellm, E.C., Chiang, H.F., Fausti, A., et al., 2019, *QA Strategy Working Group Report*, Data Management Technical Note DMTN-085, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-085.lsst.io/>
- [217] **[Document-37644]**, Bellm, E.C., Burke, C., Coughlin, M., et al., 2021, *Give Me a Few Hours: Missing Timescales in Rubin Cadence Simulations*, Informal Construction Document Document-37644, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-37644>
- [218] Benítez, N., 2000, *AJ*, 536, 571 (arXiv:astro-ph/9811189), doi:10.1086/308947, ADS Link
- [219] Berk, A., Anderson, G.P., Bernstein, L.S., et al., 1999, In: Larar, A.M. (ed.) *Optical Spectroscopic Techniques and Instrumentation for Atmospheric and Space Research III*, vol. 3756 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 348–353, doi:10.1117/12.366388, ADS Link
- [220] Bernstein, G.M., 2022, gbdes: DECam instrumental signature fitting and processing programs, Astrophysics Source Code Library, record ascl:2210.011 (ascl:2210.011), (ascl:2210.011), ADS Link
- [221] Bernstein, G.M., Armstrong, R., 2014, *MNRAS*, 438, 1880 (arXiv:1304.1843), doi:10.1093/mnras/stt2326, ADS Link
- [222] Bernstein, G.M., Jarvis, M., 2002, *AJ*, 123, 583 (arXiv:astro-ph/0107431), doi:10.1086/338085, ADS Link

- [223] Bernstein, G.M., Armstrong, R., Krawiec, C., March, M.C., 2016, MNRAS, 459, 4467 (arXiv:1508.05655), doi:10.1093/mnras/stw879, ADS Link
- [224] Bernstein, G.M., Abbott, T.M.C., Desai, S., et al., 2017, PASP, 129, 114502 (arXiv:1706.09928), doi:10.1088/1538-3873/aa858e, ADS Link
- [225] Bernstein, G.M., Armstrong, R., Plazas, A.A., et al., 2017, PASP, 129, 074503 (arXiv:1703.01679), doi:10.1088/1538-3873/aa6c55, ADS Link
- [226] Berriman, G.B., Good, J.C., Laity, A.C., Kong, M., 2008, In: Argyle, R.W., Bunclark, P.S., Lewis, J.R. (eds.) *Astronomical Data Analysis Software and Systems XVII*, vol. 394 of *Astronomical Society of the Pacific Conference Series*, 83, ADS Link
- [227] Berry, D.S., Warren-Smith, R.F., Jenness, T., 2016, *Astronomy and Computing*, 15, 33 (arXiv:1602.06681), doi:10.1016/j.ascom.2016.02.003, ADS Link
- [228] Bertin, E., 2011, In: Evans, I.N., Accomazzi, A., Mink, D.J., Rots, A.H. (eds.) *Astronomical Data Analysis Software and Systems XX*, vol. 442 of *Astronomical Society of the Pacific Conference Series*, 435, ADS Link
- [229] Beyer, B., Jones, C., Petoff, J., Murphy, N.R., 2016, *Site Reliability Engineering: How Google Runs Production Systems*, O'Reilly Media, Inc., 1st edn.
- [230] **[RTN-089]**, Bianco, F., Jones, L., 2024, *Charge to the Survey Cadence Optimization Committee*, Technical Note RTN-089, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-089.lsst.io/>
- [231] **[Document-35896]**, Bianco, F., coordinator, S., SC, T., 2020, *MEMO on the impact of delays in pixel-level data access*, Informal Construction Document Document-35896, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-35896>
- [232] Bianco, F.B., Ivezić, Ž., Jones, R.L., et al., 2022, *ApJS*, 258, 1 (arXiv:2108.01683), doi:10.3847/1538-4365/ac3e72, ADS Link
- [233] **[PSTN-054]**, Bianco, F.B., Jones, R.L., Ivezić, Ž., Ritz, S.M., Rubin Observatory Project Science Team, 2025, *Updated estimates of the Rubin system throughput and expected LSST image depth*, Project Science Technical Note PSTN-054, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-054.lsst.io/>, doi:10.71929/rubin/2584366
- [234] Bickerton, S.J., Lupton, R.H., 2013, MNRAS, 431, 1275 (arXiv:1302.4764), doi:10.1093/mnras/stt244, ADS Link

- [235] Bini, D., Crosta, M.T., de Felice, F., 2003, *Classical and Quantum Gravity*, 20, 4695, doi:10.1088/0264-9381/20/21/009, ADS Link
- [236] Blanton, M.R., Evans, J.D., Norman, D., et al., 2023, arXiv e-prints, arXiv:2311.04272 (arXiv:2311.04272), doi:10.48550/arXiv.2311.04272, ADS Link
- [237] Bloch, J., 2001, *Writing Effective Java*, Addison-Wesley, 1st edn.
- [238] Bloom, J.S., Richards, J.W., Nugent, P.E., et al., 2012, *PASP*, 124, 1175 (arXiv:1106.5491), doi:10.1086/668468, ADS Link
- [239] **[LSE-489]**, Blum, B., Ivezić, Ž., Kahn, S., Krabbendam, V., 2020, *Charge to the Project-Wide Documentation Working Group*, Systems Engineering Controlled Document LSE-489, NSF-DOE Vera C. Rubin Observatory, URL <https://lse-489.lsst.io/>
- [240] **[RTN-070]**, Blum, B., Coley, E., Cutri, R.F., et al., 2024, *Hiring Recipes*, Technical Note RTN-070, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-070.lsst.io/>
- [241] **[RDO-018]**, Blum, R., 2021, *PLAN for the OPERATIONS of the VERA C. RUBIN OBSERVATORY*, Data Management Operations Controlled Document RDO-018, NSF-DOE Vera C. Rubin Observatory, URL <https://docushare.lsstcorp.org/docushare/dsweb/Get/RDO-18>
- [242] **[RDO-013]**, Blum, R., the Rubin Operations Team, 2020, *Vera C. Rubin Observatory Data Policy*, Data Management Operations Controlled Document RDO-013, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/RDO-013>
- [243] **[RTN-093]**, Blum, R., Claver, C.F., Ivezić, Ž., Marshall, P., 2025, *Criteria to start the Legacy Survey of Space and Time*, Technical Note RTN-093, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-093.lsst.io/>
- [244] **[LDO-13]**, Blum, R., et al., 2019, *LSST Data Policy*, Data Management Operations Controlled Document LDO-13, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDO-13>,
Superseded by RDO-13
- [245] **[LDO-31]**, Blum, R., et al., 2020, *OBSOLETE NOW RDO-018 – LSST Operations Proposal*, Data Management Operations Controlled Document LDO-31, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDO-31>,
Superseded by RDO-018

- [246] **[RTN-110]**, Blum, R.D., Bianco, F.B., Strauss, M.A., Graham, M.L., 2025, *ToO Advisory Board Charge*, Technical Note RTN-110, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-110.lsst.io/>
- [247] Boch, T., Fernique, P., 2014, In: Manset, N., Forshay, P. (eds.) *Astronomical Data Analysis Software and Systems XXIII*, vol. 485 of *Astronomical Society of the Pacific Conference Series*, 277, [ADS Link](#)
- [248] Bohlender, D.A., Durand, D., Dowler, P. (eds.), 2009, *Astronomical Data Analysis Software and Systems XVIII*, vol. 411 of *Astronomical Society of the Pacific Conference Series*, [ADS Link](#)
- [249] **[PSTN-018]**, Bolton, A., 2025, *Rubin Observatory Data Facilities*, Project Science Technical Note PSTN-018, Vera C. Rubin Observatory, URL <https://pstn-018.lsst.io/>
- [250] **[RTN-086]**, Bolton, A., TBD, O., 2025, *Bulk Data Transfer Policies and Procedures*, Technical Note RTN-086, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-086.lsst.io/>
- [251] Bolton, A., Ciardi, D., Olsen, K., 2016, *Datasphere 2023*, URL <http://dx.doi.org/10.5281/zenodo.51772>,
Presented at the LSST OIR workshop, Tucson, May 2016, doi:10.5281/zenodo.51772
- [252] Bombrun, A., Lindegren, L., Holl, B., Jordan, S., 2010, *A&A*, 516, A77, doi:10.1051/0004-6361/200913503, [ADS Link](#)
- [253] Bombrun, A., Lindegren, L., Hobbs, D., et al., 2012, *A&A*, 538, A77 (arXiv:1112.4165), doi:10.1051/0004-6361/201117904, [ADS Link](#)
- [254] **[PSTN-016]**, Bond, T.W., 2019, *LSST Camera Integration and Tests*, Project Science Technical Note PSTN-016, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-016.lsst.io/>
- [255] Bonnarel, F., Fernique, P., Bienaymé, O., et al., 2000, *A&AS*, 143, 33, doi:10.1051/aas:2000331, [ADS Link](#)
- [256] Booch, G., Rumbaugh, J., Jacobson, I., 2005, *The Unified Modeling Language User Guide*, Addison-Wesley Professional, 2nd edn.
- [257] de Boor, C., 2001, *A Practical Guide to Splines*, Springer, revised edn.
- [258] Borncamp, D., Lim, P.L., 2016, *Satellite Detection in Advanced Camera for Surveys/Wide Field Channel Images*, Instrument Science Report ACS 2016-01, 10 pages, [ADS Link](#)

- [259] Borne, K., Becla, J., Davidson, I., Szalay, A., Tyson, J.A., 2008, In: Bailer-Jones, C.A.L. (ed.) *Classification and Discovery in Large Astronomical Surveys*, vol. 1082 of American Institute of Physics Conference Series, 347–351, AIP (arXiv:0811.0167), doi:10.1063/1.3059074, ADS Link
- [260] Borne, K., Accomazzi, A., Bloom, J., et al., 2009, In: *astro2010: The Astronomy and Astrophysics Decadal Survey*, vol. 2010, P6 (arXiv:0909.3892), doi:10.48550/arXiv.0909.3892, ADS Link
- [261] Borne, K.D., Jacoby, S., Carney, K., et al., 2009, In: *astro2010: The Astronomy and Astrophysics Decadal Survey*, vol. 2010, P7 (arXiv:0909.3895), doi:10.48550/arXiv.0909.3895, ADS Link
- [262] Bosch, J., 2015, Correcting sensor systematics in DM, URL <https://indico.bnl.gov/getFile.py/access?contribId=11&resId=1&materialId=slides&confId=1604>, Presented at LSST Weak Lensing Science: A Workshop on the Impact of the Last Kiloparsec
- [263] Bosch, J., 2015, Data management status, URL <http://dx.doi.org/10.5281/zenodo.47334>, Presented at the DEC 2015 Fall Meeting, Argonne National Laboratory, doi:10.5281/zenodo.47334
- [264] **[DMTN-038]**, Bosch, J., 2015, *Measurement of Blended Objects in LSST*, Data Management Technical Note DMTN-038, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-038.lsst.io/>
- [265] Bosch, J., 2016, LSST Classes, as AstroPy Spin-Off Candidates, URL <http://dx.doi.org/10.5281/zenodo.48435>, Presented at LSST/Astropy Summit, March 2016, Seattle, doi:10.5281/zenodo.48435
- [266] **[DMTN-023]**, Bosch, J., 2017, *Pipeline Command-Line Drivers*, Data Management Technical Note DMTN-023, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-023.lsst.io/>
- [267] **[LDM-513]**, Bosch, J., 2017, *Proposal for Deblender Outputs as Level 2 Data Products*, Data Management Controlled Document LDM-513, NSF-DOE Vera C. Rubin Observatory, URL <https://lsst/LDM-513>
- [268] **[LDM-562]**, Bosch, J., 2017, *Data Management System (DMS) Level 2 System Requirements*, Data Management Controlled Document LDM-562, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-562.lsst.io/>

- [269] **[DMTN-073]**, Bosch, J., 2018, *The Gen3 Butler Registry Schema*, Data Management Technical Note DMTN-073, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-073.lsst.io/>
- [270] **[DMTN-075]**, Bosch, J., 2018, *Cell-Based Coaddition*, Data Management Technical Note DMTN-075, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-075.lsst.io/>
- [271] **[Document-27962]**, Bosch, J., 2018, *DM Plans for Crowded Stellar Fields*, Informal Construction Document Document-27962, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-27962>
- [272] **[DMTN-175]**, Bosch, J., 2021, *Design sketch for a pipetask overhaul*, Data Management Technical Note DMTN-175, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-175.lsst.io/>
- [273] **[DMTN-220]**, Bosch, J., 2022, *Middleware Support for Campaign Definition and Management*, Data Management Technical Note DMTN-220, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-220.lsst.io/>
- [274] **[DMTN-172]**, Bosch, J., 2023, *Multi-Stage Image Characterization and Calibration for DRP*, Data Management Technical Note DMTN-172, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-172.lsst.io/>
- [275] **[DMTN-196]**, Bosch, J., 2023, *Practical, nearly-proper image subtraction, yet again*, Data Management Technical Note DMTN-196, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-196.lsst.io/>
- [276] **[DMTN-249]**, Bosch, J., 2023, *Revisiting division of responsibilities in Butler components*, Data Management Technical Note DMTN-249, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-249.lsst.io/>
- [277] **[DMTN-291]**, Bosch, J., 2024, *DM Plans for Wavelength-Dependent PSFs and Astrometry*, Data Management Technical Note DMTN-291, Vera C. Rubin Observatory, URL <https://dmtn-291.lsst.io/>
- [278] **[Document-15298]**, Bosch, J., Gee, P., Owen, R., Jurić, M., 2013, *LSST DM S13 Report: Shapre Measurement Plans and Prototypes*, Informal Construction Document Document-15298, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-15298>
- [279] Bosch, J., Armstrong, R., Bickerton, S., et al., 2018, PASJ, 70, S5 (arXiv:1705.06766), doi:10.1093/pasj/psx080, ADS Link

- [280] **[DMTR-51]**, Bosch, J., Chiang, H.F., Gower, M., et al., 2018, *LDM-503-2 (HSC Reprocessing) Test Report*, Data Management Test Report DMTR-51, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-51.lsst.io/>
- [281] Bosch, J., AlSayyad, Y., Armstrong, R., et al., 2019, In: Teuben, P.J., Pound, M.W., Thomas, B.A., Warner, E.M. (eds.) *Astronomical Data Analysis Software and Systems XXVII*, vol. 523 of *Astronomical Society of the Pacific Conference Series*, 521 (arXiv:1812.03248), doi:10.48550/arXiv.1812.03248, ADS Link
- [282] **[DMTN-129]**, Bosch, J., Lupton, R., Slater, C., 2019, *Crowded Field Photometry in LSST Data Release Production*, Data Management Technical Note DMTN-129, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-129.lsst.io/>
- [283] **[LDM-534]**, Bosch, J., Chiang, H.F., Gower, M., Swinbank, J.D., 2021, *LSST Level 2 System Test Specification*, Data Management Controlled Document LDM-534, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-534.lsst.io/>
- [284] **[DMTN-205]**, Bosch, J., Jenness, T., Gower, M., Salnikov, A., 2022, *Tracking Provenance in Butler*, Data Management Technical Note DMTN-205, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-205.lsst.io/>
- [285] **[PSTN-020]**, Bosch, J.F., 2019, *LSST Data Release Processing*, Project Science Technical Note PSTN-020, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-020.lsst.io/>
- [286] **[DMTN-289]**, Bosch, J.F., 2024, *Caching Database Content in Butler*, Data Management Technical Note DMTN-289, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-289.lsst.io/>
- [287] **[DMTN-294]**, Bosch, J.F., 2024, *File Formats and Layouts for Cell-based Coadds*, Data Management Technical Note DMTN-294, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-294.lsst.io/>
- [288] **[DMTN-303]**, Bosch, J.F., 2024, *Writable Butlers for Science Users*, Data Management Technical Note DMTN-303, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-303.lsst.io/>
- [289] **[DMTN-015]**, Bosch, J.F., 2025, *Flavors of Coadds*, Data Management Technical Note DMTN-015, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-015.lsst.io/>, doi:10.71929/rubin/2583432

- [290] **[DMTN-331]**, Bosch, J.F., 2025, *Background matching via null-space projection*, Data Management Technical Note DMTN-331, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-331.lsst.io/>
- [291] **[DMTN-167]**, Bosch, J.F., 2026, *Policies and Conventions for Organizing Gen3 Data Repositories*, Data Management Technical Note DMTN-167, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-167.lsst.io/>
- [292] **[DMTN-251]**, Bosch, J.F., 2026, *A New Approach to LSST's Image Data Models*, Data Management Technical Note DMTN-251, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-251.lsst.io/>
- [293] **[DMTN-271]**, Bosch, J.F., 2026, *Reimagining quantum graphs for post-execution transfers and provenance*, Data Management Technical Note DMTN-271, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-271.lsst.io/>
- [294] **[DMTN-332]**, Bosch, J.F., 2026, *Components of LSST image and catalog row IDs*, Data Management Technical Note DMTN-332, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-332.lsst.io/>
- [295] **[DMTN-282]**, Bosch, J.F., Jenness, T., Salnikov, A., Lust, N.B., Allbery, R., 2024, *Butler Client/Server Design Meeting October 2023*, Data Management Technical Note DMTN-282, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-282.lsst.io/>
- [296] **[SITCOMTN-131]**, Boutigny, D., 2024, *Monitor coupling in M1M3 VMS system and TMA drives together*, Commissioning Technical Note SITCOMTN-131, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-131.lsst.io/>
- [297] **[SITCOMTN-169]**, Boutigny, D., 2025, *Some investigations on the DIMM measurements*, Commissioning Technical Note SITCOMTN-169, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-169.lsst.io/>
- [298] **[SITCOMTN-179]**, Boutigny, D., 2026, *Characterizing the Influence of Wind Speed and Direction on Portable and Fixed DIMM seeing measurements*, Commissioning Technical Note SITCOMTN-179, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-179.lsst.io/>
- [299] **[SITCOMTN-101]**, Boutigny, D., Ferguson, P.S., Jeremie, A., 2024, *Investigation into vibrations in the M1M3 surrogate on the TMA due to the Fan Coil Units*, Commissioning Technical Note SITCOMTN-101, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-101.lsst.io/>

- [300] **[SITCOMTN-105]**, Boutigny, D., Kang, Y., MacBride, S., Quint, B.C., 2024, *Compare TMA balancing data from previous balancing events with the next events*, Commissioning Technical Note SITCOMTN-105, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-105.lsst.io/>
- [301] Bradley, J., 1727, *Philosophical Transactions of the Royal Society of London Series I*, 35, 637, [ADS Link](#)
- [302] Breivik, K., Connolly, A.J., Ford, K.E.S., et al., 2022, arXiv e-prints, arXiv:2208.02781 (arXiv:2208.02781), doi:10.48550/arXiv.2208.02781, [ADS Link](#)
- [303] Bretagnon, P., 1982, *A&A*, 114, 278, [ADS Link](#)
- [304] Bretagnon, P., Francou, G., 1988, *A&A*, 202, 309, [ADS Link](#)
- [305] Brett, D.R., West, R.G., Wheatley, P.J., 2004, *MNRAS*, 353, 369 (arXiv:astro-ph/0408118), doi:10.1111/j.1365-2966.2004.08093.x, [ADS Link](#)
- [306] Britton, M.C., 2004, In: Craig, S.C., Cullum, M.J. (eds.) *Modeling and Systems Engineering for Astronomy*, vol. 5497 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, 290–300, doi:10.1117/12.552316, [ADS Link](#)
- [307] Brooks, F.P., 1982, *The mythical man-month. Essays on software engineering*, [ADS Link](#)
- [308] **[DMTN-336]**, Broughton, A., 2026, *Calibration and Correction of the Brighter-Fatter Effect in LSSTCam*, Data Management Technical Note DMTN-336, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-336.lsst.io/>
- [309] Broughton, A., Utsumi, Y., Plazas Malagón, A.A., et al., 2024, *PASP*, 136, 045003 (arXiv:2312.03115), doi:10.1088/1538-3873/ad3aa2, [ADS Link](#)
- [310] Brown, A.G.A., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of *ESA Special Publication*, 377, [ADS Link](#)
- [311] Brown, M.J.I., Moustakas, J., Smith, J.D.T., et al., 2014, *ApJS*, 212, 18 (arXiv:1312.3029), doi:10.1088/0067-0049/212/2/18, [ADS Link](#)
- [312] Brown, S., 2010, *Characterisation and Mitigation of Radiation Damage on the Gaia Astrometric Field*, Ph.D. thesis, Institute of Astronomy, University of Cambridge, Madingley Road, Cambridge, CB3 0HA, United Kingdom
- [313] de Bruijne, J., 2004, private communication

- [314] de Bruijne, J., Jordi, C., 2004, URL <http://gaia.am.ub.es/PWG/common/instrumGAIA2.html>, private communication
- [315] Brumfit, J., 2002, *Java Coding Standard and Guidelines for the Herschel Common Science System*, Tech. rep., ESTEC, HSCDT/TN009
- [316] Bucciarelli, B., Taff, L.G., Lattanzi, M.G., 1993, *J. Statist. Comput. Simul.*, 48, 29
- [317] Bucciarelli, B., Lattanzi, M.G., Taff, L.G., 1994, *ApJ*, 433, 831, doi:10.1086/174692, ADS Link
- [318] Budavári, T., Szalay, A.S., 2008, *ApJ*, 679, 301 (arXiv:0707.1611), doi:10.1086/587156, ADS Link
- [319] Burke, D.L., Rykoff, E.S., Allam, S., et al., 2018, *AJ*, 155, 41 (arXiv:1706.01542), doi:10.3847/1538-3881/aa9f22, ADS Link
- [320] Burrows, M., 2006, In: *Proceedings of the 7th Symposium on Operating Systems Design and Implementation, OSDI '06*, 335–350, USENIX Association, Berkeley, CA, USA, URL <http://dl.acm.org/citation.cfm?id=1298455.1298487>
- [321] Burt, D., 2003, *Gaia Technology Demonstrator: AF CCD DESIGN REPORT*, Tech. rep., e2v, GAIA-E2V-RP-020
- [322] Bus, S.J., Binzel, R.P., 2002, *Icarus*, 158, 106, doi:10.1006/icar.2002.6857, ADS Link
- [323] Bus, S.J., Binzel, R.P., 2002, *Icarus*, 158, 146, doi:10.1006/icar.2002.6856, ADS Link
- [324] Bus, S.J., Binzel, R.P., 2002, *Icarus*, 158, 106, doi:10.1006/icar.2002.6857, ADS Link
- [325] Busonero, D., Gai, M., Gardiol, D., Lattanzi, M.G., Loreggia, D., 2006, *A&A*, 449, 827 (arXiv:astro-ph/0511572), doi:10.1051/0004-6361:20054180, ADS Link
- [326] **[DMTR-102]**, Butler, M., 2019, *LDM-503-8b (Small Scale CCOB Data Access) Test Plan and Report*, Data Management Test Report DMTR-102, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-102.lsst.io/>
- [327] **[DMTR-121]**, Butler, M., 2019, *LDM-503-8 Spectrograph Data Acquisition Test Plan and Report*, Data Management Test Report DMTR-121, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-121.lsst.io/>

- [328] **[DMTR-171]**, Butler, M., 2020, *LDM-503-6: ComCam Interface Verification Readiness Test Plan and Report*, Data Management Test Report DMTR-171, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-171.lsst.io/>
- [329] **[DMTR-181]**, Butler, M., 2020, *LDM-503-10: DAQ Validation Test Plan and Report*, Data Management Test Report DMTR-181, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-181.lsst.io/>
- [330] **[DMTR-182]**, Butler, M., 2020, *LDM-503-10b: Large Scale CCOB Data Access Test Plan and Report*, Data Management Test Report DMTR-182, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-182.lsst.io/>
- [331] **[DMTR-61]**, Butler, M., Parsons, J., 2018, *LDM-503-04 and LDM-503-04b (Raw Image Archiving Service) Test Report*, Data Management Test Report DMTR-61, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/DMTR-61>
- [332] **[LDM-538]**, Butler, M., Parsons, J., Gower, M., 2021, *LSST DM Raw Image Archiving Service Test Specification*, Data Management Controlled Document LDM-538, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-538.lsst.io/>
- [333] Butler, N.R., Bloom, J.S., 2011, *AJ*, 141, 93 (arXiv:1008.3143), doi:10.1088/0004-6256/141/3/93, ADS Link
- [334] Buton, C., Copin, Y., Aldering, G., et al., 2013, *A&A*, 549, A8 (arXiv:1210.2619), doi:10.1051/0004-6361/201219834, ADS Link
- [335] **[LPM-191]**, Calabrese, D., 2017, *Travel Policy*, Project Controlled Document LPM-191, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-191>
- [336] **[RTN-055]**, Calderon, J., Giraldo Murillo, L.M., Lage, C.S., Plazas Malagón, A.A., 2025, *Study of the Linearity of the CCDs of the Vera C. Rubin Observatory*, Technical Note RTN-055, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-055.lsst.io/>, doi:10.71929/rubin/2575154
- [337] Campaign Storage, Campaign Storage, URL <http://campaignstorage.com/>
- [338] Cardelli, J.A., Clayton, G.C., Mathis, J.S., 1989, *ApJ*, 345, 245, doi:10.1086/167900, ADS Link
- [339] **[SQR-024]**, Carlin, J., 2018, *Enabling flake8 testing and Travis CI for existing DM repos*, SQuaRE Technical Note SQR-024, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-024.lsst.io/>

- [340] **[DMTR-201]**, Carlin, J., 2020, *LWV-P65 Fall 2019 Pipelines Release Acceptance Test Campaign Test Plan and Report*, Data Management Test Report DMTR-201, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-201.lsst.io/>
- [341] **[DMTR-251]**, Carlin, J., 2020, *Characterization Metric Report: Science Pipelines Version 20.0.0*, Data Management Test Report DMTR-251, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-251.lsst.io/>
- [342] **[DMTR-261]**, Carlin, J., 2020, *LWV-P71: Science Pipelines Release 20.0.0 Acceptance Test Campaign Test Plan and Report*, Data Management Test Report DMTR-261, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-261.lsst.io/>
- [343] **[DMTR-281]**, Carlin, J., 2020, *Characterization Metric Report: Science Pipelines Version 21.0.0*, Data Management Test Report DMTR-281, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-281.lsst.io/>
- [344] **[LDM-742]**, Carlin, J., 2020, *Vera C. Rubin Observatory DM Infrastructure Verification Document*, Data Management Controlled Document LDM-742, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-742.lsst.io/>
- [345] **[LDM-752]**, Carlin, J., 2020, *Vera C. Rubin Observatory DM Science Verification Document*, Data Management Controlled Document LDM-752, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-752.lsst.io/>
- [346] **[DMTR-311]**, Carlin, J., 2021, *Characterization Metric Report: Science Pipelines Version 22.0.0*, Data Management Test Report DMTR-311, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-311.lsst.io/>
- [347] **[DMTR-271]**, Carlin, J., 2022, *LDM-GEN3: Gen 3 Butler Acceptance Testing Test Plan and Report*, Data Management Test Report DMTR-271, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-271.lsst.io/>
- [348] **[DMTR-351]**, Carlin, J., 2022, *Characterization Metric Report: Science Pipelines Version 23.0.0*, Data Management Test Report DMTR-351, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-351.lsst.io/>
- [349] **[DMTR-371]**, Carlin, J., 2023, *LWV-P99: Data Management Acceptance Test Campaign 1 Test Plan and Report*, Data Management Test Report DMTR-371, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-371.lsst.io/>

- [350] **[DMTR-391]**, Carlin, J., 2023, *Characterization Metric Report: Science Pipelines Version 24.1.0*, Data Management Test Report DMTR-391, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-391.lsst.io/>
- [351] **[DMTR-392]**, Carlin, J., 2023, *Characterization Metric Report: Science Pipelines Version 25.0.0*, Data Management Test Report DMTR-392, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-392.lsst.io/>
- [352] **[DMTR-401]**, Carlin, J., 2024, *LWV-P106: Data Management Acceptance Test Campaign, Fall 2023 Test Plan and Report*, Data Management Test Report DMTR-401, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-401.lsst.io/>
- [353] **[DMTR-421]**, Carlin, J., 2024, *Characterization Metric Report: Science Pipelines Version 26.0.0*, Data Management Test Report DMTR-421, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-421.lsst.io/>
- [354] **[DMTR-431]**, Carlin, J., 2024, *Characterization Metric Report: Science Pipelines Version 27.0.0*, Data Management Test Report DMTR-431, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-431.lsst.io/>
- [355] **[LDM-753]**, Carlin, J., 2024, *Vera C. Rubin Observatory DM Science Verification Document*, Data Management Controlled Document LDM-753, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-753.lsst.io/>
- [356] **[DMTR-412]**, Carlin, J., 2025, *LWV-P117: LDM-503-19a (All P1a DM requirements verified) Test Plan and Report*, Data Management Test Report DMTR-412, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-412.lsst.io/>
- [357] **[DMTR-451]**, Carlin, J., 2025, *Characterization Metric Report: Science Pipelines Version 28.0.0*, Data Management Test Report DMTR-451, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-451.lsst.io/>
- [358] **[DMTR-461]**, Carlin, J., 2025, *Characterization Metric Report: Science Pipelines Version 29.0*, Data Management Test Report DMTR-461, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-461.lsst.io/>
- [359] **[DMTR-471]**, Carlin, J., 2025, *LWV-P117: LDM-503-19a (All P1a DM requirements verified) Test Plan and Report*, Data Management Test Report DMTR-471, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-471.lsst.io/>

- [360] **[SCTR-116]**, Carlin, J., 2025, *System-level Science Verification Acceptance Test Campaign: Photometric Calibration Test Plan and Report*, Commissioning Technical Report SCTR-116, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-116.lsst.io/>
- [361] **[DMTR-441]**, Carlin, J., 2026, *LW-P128: LDM-503-19 (All P1a and 1b DM requirements verified) Test Plan and Report*, Data Management Test Report DMTR-441, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-441.lsst.io/>
- [362] **[DMTR-191]**, Carlin, J., Krughoff, K.S., Comoretto, G., 2019, *Characterization Metric Report: Science Pipelines Version 19.0.0*, Data Management Test Report DMTR-191, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-191.lsst.io/>
- [363] **[Document-13760]**, Carlson, E., 2017, *Travel Request Instructions for AURA Employees*, Informal Construction Document Document-13760, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-13760>
- [364] **[Document-13762]**, Carlson, E., 2017, *LSST Travel Summary Report Template*, Informal Construction Document Document-13762, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-13762>
- [365] Carrasco Kind, M., Brunner, R., 2013, TPZ: Trees for Photo-Z, Astrophysics Source Code Library, record ascl:1304.011 (ascl:1304.011), (ascl:1304.011), ADS Link
- [366] Carrasco Kind, M., Brunner, R.J., 2013, MNRAS, 432, 1483 (arXiv:1303.7269), doi:10.1093/mnras/stt574, ADS Link
- [367] Carrasco Kind, M., Brunner, R.J., 2014, MNRAS, 441, 3550 (arXiv:1404.6442), doi:10.1093/mnras/stu827, ADS Link
- [368] Casertano, S., Hut, P., 1985, ApJ, 298, 80, doi:10.1086/163589, ADS Link
- [369] **[DMTN-320]**, Ceballo, R., 2025, *Retention Strategy for eups packages.*, Data Management Technical Note DMTN-320, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-320.lsst.io/>
- [370] **[DMTN-327]**, Ceballo, R., Ranabhat, A., 2025, *Optimizing Resource Usage and Cost Efficiency for Jenkins and Google Cloud Storage*, Data Management Technical Note DMTN-327, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-327.lsst.io/>
- [371] Chamberlin D., B.R., 1974, *SEQL: A Structured English Query Language*, Tech. rep., IBM research laboratory, URL <http://faculty.cse.tamu.edu/yurttas/PL/DBL/docs/sequel-1974.pdf>

- [372] Chambers, K.C., 2005, In: Seidelmann, P.K., Monet, A.K.B. (eds.) *Astrometry in the Age of the Next Generation of Large Telescopes*, vol. 338 of *Astronomical Society of the Pacific Conference Series*, 134, ADS Link
- [373] Chambers, K.C., Magnier, E.A., Metcalfe, N., et al., 2016, arXiv e-prints, arXiv:1612.05560 (arXiv:1612.05560), doi:10.48550/arXiv.1612.05560, ADS Link
- [374] Chang, F., Dean, J., Ghemawat, S., et al., 2008, *ACM Trans. Comput. Syst.*, 26, 4:1, doi:10.1145/1365815.1365816
- [375] **[RTN-043]**, Charles, E., Villarreal, S., Mueller, F., 2023, *Campaign management system design and prototype*, Technical Note RTN-043, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-043.lsst.io/>
- [376] **[SITCOMTN-154]**, Charles, E., Crenshaw, J.F., Zhang, T., et al., 2025, *Initial studies of photometric redshifts with LSSTComCam from DP1*, Commissioning Technical Note SITCOMTN-154, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-154.lsst.io/>, doi:10.71929/rubin/2571480
- [377] Chattopadhyay, B., Lin, L., Liu, W., et al., 2011, In: *Proceedings of VLDB*, vol. 4, 1318–1327, URL <https://research.google.com/pubs/pub37200.html>
- [378] **[DMTN-170]**, Chiang, H.F., 2021, *Ingesting reprocessed HSC catalog data to Qserv at NCSA*, Data Management Technical Note DMTN-170, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-170.lsst.io/>
- [379] **[RTN-024]**, Chiang, H.F., Dubois, R., 2023, *Routine HSC/DC2 Processing at SLAC as early demonstrator*, Technical Note RTN-024, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-024.lsst.io/>
- [380] **[DMTN-088]**, Chiang, H.F., Johnson, M.W.G., 2018, *As-is HSC Reprocessing*, Data Management Technical Note DMTN-088, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-088.lsst.io/>
- [381] **[DMTN-157]**, Chiang, H.F., Lim, K.T., 2020, *Report of Google Cloud Proof of Concept 2020*, Data Management Technical Note DMTN-157, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-157.lsst.io/>
- [382] **[DMTN-160]**, Chiang, H.F., Thrush, S., 2020, *S18 HSC PDR1 reprocessing*, Data Management Technical Note DMTN-160, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-160.lsst.io/>

- [383] **[DMTR-31]**, Chiang, H.F., Daues, G., Thrush, S., The NCSA Team, 2017, *S17B HSC PDR1 Reprocessing Report*, Data Management Test Report DMTR-31, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/DMTR-31>
- [384] **[DMTN-137]**, Chiang, H.F., Bektesevic, D., the AWS-PoC team, 2020, *AWS Proof of Concept Project Report*, Data Management Technical Note DMTN-137, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-137.lsst.io/>
- [385] **[RTN-028]**, Chiang, J., 2022, *Computing resource estimates for running the DRP pipeline at NERSC and on the SLAC SDF*, Technical Note RTN-028, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-028.lsst.io/>
- [386] **[RTN-109]**, Chiang, J., 2025, *DRP Resource Usage Estimates*, Technical Note RTN-109, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-109.lsst.io/>
- [387] **[RTN-088]**, Chiang, J., O'Mullane, W., 2024, *L3 - USDF ready for LSSTCam processing*, Technical Note RTN-088, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-088.lsst.io/>
- [388] Choi, Y., Olsen, K.A.G., Carlin, J.L., et al., 2025, arXiv e-prints, arXiv:2507.01343 (arXiv:2507.01343), doi:10.48550/arXiv.2507.01343, ADS Link
- [389] Chorier, P., Tribolet, P., Destéfanis, G., 2006, In: Andresen, B.F., Fulop, G.F., Norton, P.R. (eds.) *Infrared Technology and Applications XXXII*, vol. 6206 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 620601, doi:10.1117/12.669128, ADS Link
- [390] **[SITCOMTN-017]**, Christopher W. Stubbs and Patrick J. Ingraham, 2021, *SIT-Com Image Quality Team Description*, Commissioning Technical Note SITCOMTN-017, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-017.lsst.io/>
- [391] Ciardi, D., 2016, *Large Synoptic Survey Telescope and Synergies with the VO*, URL http://wiki.ivoa.net/internal/IVOA/InterOpMay2016Focus/LSST_IVOA_20160506c.pdf, Presentation at the Northern Spring IVOA Meeting, South Africa
- [392] **[LDM-482]**, Ciardi, D., Dubois-Felsmann, G., 2016, *Data Access Policy for the Data Management Prototype DAC*, Data Management Controlled Document LDM-482, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-482>
- [393] **[LDM-130]**, Ciardi, D., Dubois-Felsmann, G., Wu, X., 2017, *LSST Science User Interface and Tools Requirements*, Data Management Controlled Document LDM-130, Vera C. Rubin Observatory and IPAC, URL <https://ls.st/LDM-130>

- [394] Ciardi, D.R., 2016, LSST and Synergies with the VO, URL <http://dx.doi.org/10.5281/zenodo.44635>,
Talk presented at the US Virtual Observatory Alliance Annual Meeting held at the Annual Astronomical Society meeting 227., doi:10.5281/zenodo.44635
- [395] **[LDM-492]**, Ciardi, D.R., Wu, X., Dubois-Felsmann, G., 2016, *A Vision for the Science User Interface and Tools*, Data Management Controlled Document LDM-492, Vera C. Rubin Observatory and IPAC, URL <https://ls.st/LDM-492>
- [396] Claeskens, J.F., Smette, A., Vandenbulcke, L., Surdej, J., 2006, MNRAS, 367, 879, doi:10.1111/j.1365-2966.2006.10024.x, ADS Link
- [397] **[SITCOMTN-002]**, Claver, C., 2020, *Performance Assessment of the LSST Startracker*, Commissioning Technical Note SITCOMTN-002, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-002.lsst.io/>
- [398] **[SCTR-81]**, Claver, C., 2023, *LVV-P100: TMA Pointing and Tracking Verification Test Plan and Report*, Commissioning Technical Report SCTR-81, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-81.lsst.io/>
- [399] **[LSE-39]**, Claver, C., Dubois-Felsmann, G., 2010, *LSST Document Tree*, Systems Engineering Controlled Document LSE-39, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-39>
- [400] **[LSE-79]**, Claver, C., The LSST Commissioning Planning Team, 2017, *System AI&T and Commissioning Plan*, Systems Engineering Controlled Document LSE-79, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-79>
- [401] **[LSE-17]**, Claver, C., Angeli, G., Selvy, B., 2016, *Systems Engineering Management Plan*, Systems Engineering Controlled Document LSE-17, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-17>
- [402] **[SITCOMTN-005]**, Claver, C., Bauer, A., Bechtol, K., et al., 2025, *Construction Completeness and Operations Readiness Criteria*, Commissioning Technical Note SITCOMTN-005, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-005.lsst.io/>
- [403] **[LSE-509]**, Claver, C.C., Ingraham, P., 2022, *SIT-Com Management Plan*, Systems Engineering Controlled Document LSE-509, NSF-DOE Vera C. Rubin Observatory, URL <https://lse-509.lsst.io/>

- [404] **[PSTN-004]**, Claver, C.F., 2019, *EXAMPLE: LSST Observatory System Operations Readiness Report*, Project Science Technical Note PSTN-004, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-004.lsst.io/>
- [405] **[PSTN-033]**, Claver, C.F., 2019, *Active Optics Performance with LSST Commissioning Camera*, Project Science Technical Note PSTN-033, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-033.lsst.io/>
- [406] **[PSTN-034]**, Claver, C.F., 2019, *LSST Active Optics Performance with the LSST Science Camera*, Project Science Technical Note PSTN-034, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-034.lsst.io/>
- [407] **[PSTN-041]**, Claver, C.F., 2019, *The LSST Science Platform as a Commissioning Tool*, Project Science Technical Note PSTN-041, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-041.lsst.io/>
- [408] **[PSTN-042]**, Claver, C.F., 2020, *Commissioning Science Data Quality Analysis Tools, Methods and Procedures*, Project Science Technical Note PSTN-042, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-042.lsst.io/>
- [409] **[LSE-29]**, Claver, C.F., The LSST Systems Engineering Integrated Project Team, 2017, *LSST System Requirements (LSR)*, Systems Engineering Controlled Document LSE-29, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-29>
- [410] **[LSE-30]**, Claver, C.F., The LSST Systems Engineering Integrated Project Team, 2018, *Observatory System Specifications (OSS)*, Systems Engineering Controlled Document LSE-30, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-30>
- [411] Claver, C.F., Sweeney, D.W., Tyson, J.A., et al., 2004, In: Oschmann, J.M., Jr. (ed.) *Ground-based Telescopes*, vol. 5489 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 705–716, doi:10.1117/12.561728, ADS Link
- [412] Claver, C.F., Dubois-Felsmann, G.P., Delgado, F., et al., 2010, In: American Astronomical Society Meeting Abstracts #215, vol. 215 of American Astronomical Society Meeting Abstracts, 401.02, ADS Link
- [413] Claver, C.F., Chandrasekharan, S., Liang, M., et al., 2012, In: Stepp, L.M., Gilmozzi, R., Hall, H.J. (eds.) *Ground-based and Airborne Telescopes IV*, vol. 8444 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 84444P, doi:10.1117/12.926472, ADS Link

- [414] Claver, C.F., Selvy, B.M., Angeli, G., et al., 2014, In: Angeli, G.Z., Dierickx, P. (eds.) *Modeling, Systems Engineering, and Project Management for Astronomy VI*, vol. 9150 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 91500M, doi:10.1117/12.2056781, ADS Link
- [415] Colangelo, G., 2004, *Gaia System Requirements Document for Technical Assistance & Definition Phase*, Tech. rep., ESA, Gaia-SRC-001, Issue 1.0
- [416] Collins, J., 2001, *Good to Great: Why Some Companies Make the Leap...And Others Don't*, HarperCollins, URL <http://books.google.es/books?id=Q7ja95uwUT4C>
- [417] **[SITCOMTN-161]**, Combet, C., Plazas Malagón, A., Fu, S., et al., 2025, *PSF assessment in the field of Abell 360 and shapeHSM shear profile using LSSTComCam data*, Commissioning Technical Note SITCOMTN-161, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-161.lsst.io/>, doi:10.71929/rubin/2572986
- [418] **[DMTN-106]**, Comoretto, G., 2019, *DM Release Process*, Data Management Technical Note DMTN-106, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-106.lsst.io/>
- [419] **[DMTN-110]**, Comoretto, G., 2019, *Conda Environment Proposal for Science Pipelines*, Data Management Technical Note DMTN-110, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-110.lsst.io/>
- [420] **[DMTR-141]**, Comoretto, G., 2019, *Characterization Metric Report: Science Pipelines Version 18.0.0*, Data Management Test Report DMTR-141, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-141.lsst.io/>
- [421] **[DMTN-174]**, Comoretto, G., 2020, *Rubin-Env Integration with DM Build Tools*, Data Management Technical Note DMTN-174, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-174.lsst.io/>
- [422] **[DMTN-140]**, Comoretto, G., 2021, *Documentation Automation for the Verification and Validation of Rubin Observatory Software*, Data Management Technical Note DMTN-140, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-140.lsst.io/>
- [423] **[DMTN-178]**, Comoretto, G., 2021, *Docsteady Usecases for Rubin Observatory Constructions*, Data Management Technical Note DMTN-178, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-178.lsst.io/>

- [424] Comoretto, G., Gallegos, J., Els, S., et al., 2012, In: Angeli, G.Z., Dierickx, P. (eds.) Modeling, Systems Engineering, and Project Management for Astronomy V, vol. 8449 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 84490G, doi:10.1117/12.926797, ADS Link
- [425] **[LDM-672]**, Comoretto, G., Guy, L.P., O'Mullane, W., et al., 2019, *LSST Software Release Management*, Data Management Controlled Document LDM-672, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-672.lsst.io/>
- [426] Comoretto, G., Guy, L.P., O'Mullane, W., et al., 2020, In: Angeli, G.Z., Dierickx, P. (eds.) Modeling, Systems Engineering, and Project Management for Astronomy IX, vol. 11450 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 114500E, doi:10.1117/12.2561604, ADS Link
- [427] Connolly, A., 2002, Data Management for the LSST, Invited talk. Paper not submitted to proceedings.
- [428] Connolly, A., 2016, Surveying the Sky with the LSST: Software as the instrument of the Next Decade, URL <http://dx.doi.org/10.5281/zenodo.56737>, Plenary talk at the SPIE Astronomical Telescopes and Instrumentation Conference, Edinburgh, UK, doi:10.5281/zenodo.56737
- [429] Connolly, A., Boroson, T.A., 2002, In: Quinn, P.J. (ed.) Observatory Operations to Optimize Scientific Return III, vol. 4844 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 225–231, doi:10.1117/12.460742, ADS Link
- [430] Connolly, A., LSST Team, 2002, In: American Astronomical Society Meeting Abstracts, vol. 201 of American Astronomical Society Meeting Abstracts, 134.05, ADS Link
- [431] **[PSTN-038]**, Connolly, A.J., 2020, *Science Validation of LSST Alert Processing*, Project Science Technical Note PSTN-038, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-038.lsst.io/>
- [432] Connolly, A.J., Smith, I., Krughoff, K.S., Gibson, R., 2011, In: Evans, I.N., Accomazzi, A., Mink, D.J., Rots, A.H. (eds.) Astronomical Data Analysis Software and Systems XX, vol. 442 of Astronomical Society of the Pacific Conference Series, 443, ADS Link
- [433] Connolly, A.J., Angeli, G.Z., Chandrasekharan, S., et al., 2014, In: Angeli, G.Z., Dierickx, P. (eds.) Modeling, Systems Engineering, and Project Management for Astronomy VI, vol. 9150 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 915014, doi:10.1117/12.2054953, ADS Link

- [434] **[ITTN-015]**, Constanzo, J., 2020, *Wireless Integration with NOIRLabs*, Information Technology Technical Note ITTN-015, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-015.lsst.io/>
- [435] **[ITTN-049]**, Constanzo, J., 2021, *Internet Edge Firewall Design*, Information Technology Technical Note ITTN-049, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-049.lsst.io/>
- [436] **[ITTN-050]**, Constanzo, J., 2021, *Long-Haul Network Architecture*, Information Technology Technical Note ITTN-050, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-050.lsst.io/>
- [437] **[ITTN-075]**, Constanzo, J., 2024, *Rubin IPsec Tunnels*, Information Technology Technical Note ITTN-075, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-075.lsst.io/>
- [438] **[ITTN-076]**, Constanzo, J., Silva, C., 2025, *Rubin Pixel Zone*, Information Technology Technical Note ITTN-076, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-076.lsst.io/>
- [439] **[SCTR-71]**, Corlies, L., 2022, *LW-P98: Verification of EPO Program Test Plan and Report*, Commissioning Technical Report SCTR-71, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-71.lsst.io/>
- [440] Corporation, O., 2006, *Installing Oracle RAC 10g on Linux x86*, Tech. rep., Oracle
- [441] **[ITTN-016]**, Corral, L., 2020, *Wi-Fi Infrastructure High-Level Design (HLD)*, Information Technology Technical Note ITTN-016, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-016.lsst.io/>
- [442] **[ITTN-017]**, Corral, L., 2020, *VoIP Infrastructure High-Level Design (HLD)*, Information Technology Technical Note ITTN-017, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-017.lsst.io/>
- [443] **[ITTN-018]**, Corral, L., 2020, *Network Infrastructure High-Level Design (HLD)*, Information Technology Technical Note ITTN-018, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-018.lsst.io/>
- [444] **[ITTN-023]**, Corral, L., 2020, *Cisco ISE Cluster Deployment*, Information Technology Technical Note ITTN-023, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-023.lsst.io/>
- [445] Núñez Corrales, S., Cragin, M., White (Wonders), A., et al., 2018, Open storage network: national data storage cyberinfrastructure for the 21st, URL <http://rgdoi.net/10.13140/RG.2.2.31543.78249>, doi:10.13140/RG.2.2.31543.78249

- [446] **[SITCOMTN-132]**, Cortes, P., 2024, *TopBox Control Update*, Commissioning Technical Note SITCOMTN-132, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-132.lsst.io/>
- [447] Coster, A., Pankratius, V., Lind, F., Erickson, P., Semeter, J., 2014, In: Proceedings of the 27th International Technical Meeting of The Satellite Division of the Institute of Navigation (ION GNSS+ 2014), 1213–1221, URL <https://www.ion.org/publications/abstract.cfm?articleID=12273>
- [448] **[TSTN-018]**, Coughlin, E., 2020, *AT CSC Overview*, Telescope and Site Technical Note TSTN-018, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-018.lsst.io/>
- [449] **[TSTN-003]**, Coughlin, E., Ribeiro, T., Reuter, M., Bovill, R., 2020, *Conda development guide.*, Telescope and Site Technical Note TSTN-003, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-003.lsst.io/>
- [450] Coughlin, M.W., Deustua, S., Guyonnet, A., et al., 2018, In: Observatory Operations: Strategies, Processes, and Systems VII, vol. 10704 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 1070420 (arXiv:1806.02422), doi:10.1117/12.2309582, ADS Link
- [451] **[SITCOMTN-111]**, Crenshaw, J.F., 2024, *Notes on Wavefront Estimation*, Commissioning Technical Note SITCOMTN-111, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-111.lsst.io/>
- [452] Cropper, M., Rosen, S., 2006, Spectra extraction, URL http://wwwhip.obspm.fr/gaia/cu6/workshop_2/CU6_w2_Cropper_extraction.pdf, CU6 Workshop2
- [453] Crosta, M.T., 2003, *Methods of relativistic astrometry for the analysis of astrometric data in the gravitational field of the Solar System*, Ph.D. thesis, Torino/Padova, Italy
- [454] Crosta, M.T., Mignard, F., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) The Three-Dimensional Universe with Gaia, vol. 576 of ESA Special Publication, 281, ADS Link
- [455] Crosta, M.T., Mignard, F., 2006, Classical and Quantum Gravity, 23, 4853 (arXiv:astro-ph/0512359), doi:10.1088/0264-9381/23/15/006, ADS Link
- [456] **[Document-11019]**, Crotts, A., 2011, *Standard Candle Relations and Photo-diversity of Type Ia Supernovae*, Informal Construction Document Document-11019, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-11019>

- [457] Cuby, J.G., Bottini, D., Picat, J.P., 1998, In: D’Odorico, S. (ed.) *Optical Astronomical Instrumentation*, vol. 3355 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, 36–47, doi:10.1117/12.316769, ADS Link
- [458] Cudre-Mauroux, P., Kimura, H., Lim, K.T., et al., 2009, *Proc. VLDB Endow.*, 2, 1534, URL <http://dx.doi.org/10.14778/1687553.1687584>, doi:10.14778/1687553.1687584
- [459] **[SITCOMTN-119]**, Dagoret-Campagne, S., 2024, *Three years of atmospheric parameters above Rubin-LSST site from MERRA2 database*, Commissioning Technical Note SITCOMTN-119, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-119.lsst.io/>
- [460] Dahlen, T., Mobasher, B., Faber, S.M., et al., 2013, *Apj*, 775, 93 (arXiv:1308.5353), doi:10.1088/0004-637X/775/2/93, ADS Link
- [461] **[SMTN-006]**, Daniel, S., Kalmbach, B., 2016, *Generating the CatSim Bright Stars Catalog*, Simulations Team Technical Note SMTN-006, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-006.lsst.io/>
- [462] DataTag, Datatag, research & technological development for a data transatlantic grid, <http://datatag.web.cern.ch/datatag/project.html>, URL <http://datatag.web.cern.ch/datatag/project.html>
- [463] **[DMTN-060]**, Daues, G., 2018, *Distributed Data Management and File Transfer Systems*, Data Management Technical Note DMTN-060, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-060.lsst.io/>
- [464] **[DMTN-089]**, Daues, G., Chiang, H.F., 2018, *Notes on Singularity*, Data Management Technical Note DMTN-089, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-089.lsst.io/>
- [465] de Bruijne, J., Kohley, R., Prusti, T., 2010, In: Oschmann, J.M., Jr., Clampin, M.C., MacEwen, H.A. (eds.) *Space Telescopes and Instrumentation 2010: Optical, Infrared, and Millimeter Wave*, vol. 7731 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, 77311C, doi:10.1117/12.862062, ADS Link
- [466] de Bruijne, J.H.J., Lammers, U., Perryman, M.A.C., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of *ESA Special Publication*, 67, ADS Link
- [467] de Felice, F., Preti, G., 2006, *Classical and Quantum Gravity*, 23, 5467, doi:10.1088/0264-9381/23/18/001, ADS Link

- [468] de Felice, F., Lattanzi, M.G., Vecchiato, A., Bernacca, P.L., 1997, In: Battrick, B. (ed.) Hipparcos - Venice 1997, vol. 402 of ESA Special Publication, 767–770, ADS Link
- [469] de Felice, F., Lattanzi, M.G., Vecchiato, A., Bernacca, P.L., 1998, A&A, 332, 1133, ADS Link
- [470] de Felice, F., Bucciarelli, B., Lattanzi, M.G., Vecchiato, A., 2001, A&A, 373, 336, doi:10.1051/0004-6361:20010499, ADS Link
- [471] de Felice, F., Crosta, M.T., Vecchiato, A., Lattanzi, M.G., Bucciarelli, B., 2004, ApJ, 607, 580 (arXiv:astro-ph/0401637), doi:10.1086/383244, ADS Link
- [472] de Felice, F., Vecchiato, A., Crosta, M.T., Bucciarelli, B., Lattanzi, M.G., 2006, ApJ, 653, 1552 (arXiv:astro-ph/0609073), doi:10.1086/508701, ADS Link
- [473] de Vaucouleurs, G., 1948, Annales d’Astrophysique, 11, 247, ADS Link
- [474] de Vaucouleurs, G., 1953, MNRAS, 113, 134, doi:10.1093/mnras/113.2.134, ADS Link
- [475] Dean, J., Ghemawat, S., 2008, Commun. ACM, 51, 107, doi:10.1145/1327452.1327492
- [476] Deelman, E., Vahi, K., Juve, G., et al., 2015, Future Generation Computer Systems, 46, 17, URL <http://pegasus.isi.edu/publications/2014/2014-fgcs-deelman.pdf>,
Funding Acknowledgements: NSF ACI SDCI 0722019, NSF ACI SI2-SSI 1148515 and NSF OCI-1053575, doi:10.1016/j.future.2014.10.008
- [477] Dehnen, W., Binney, J.J., 1998, MNRAS, 298, 387 (arXiv:astro-ph/9710077), doi:10.1046/j.1365-8711.1998.01600.x, ADS Link
- [478] **[Document-28449]**, Delgado, F., 2018, *Project Response to Telescope & Site Software Review Report 2018-02*, Informal Construction Document Document-28449, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-28449>
- [479] Delgado, F., Reuter, M.A., 2016, In: Peck, A.B., Seaman, R.L., Benn, C.R. (eds.) Observatory Operations: Strategies, Processes, and Systems VI, vol. 9910 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 991013, doi:10.1117/12.2233630, ADS Link
- [480] Delgado, F., Saha, A., Chandrasekharan, S., et al., 2014, In: Angeli, G.Z., Dierickx, P. (eds.) Modeling, Systems Engineering, and Project Management for Astronomy VI, vol. 9150 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 915015, doi:10.1117/12.2056898, ADS Link

- [481] Denneau, L., Tonry, J., Heinze, A., et al., 2023, Minor Planet Electronic Circulars, 2023-O26, doi:10.48377/MPEC/2023-O26, ADS Link
- [482] **[RTN-096]**, Dennihy, E., Jones, L., 2025, *Observatory Metadata Flow and Usage Guidelines*, Technical Note RTN-096, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-096.lsst.io/>
- [483] **[SITCOMTN-091]**, Dennihy, E., Shugart, A., Christensen, E., 2023, *Operation of AuxTel in Survey Mode*, Commissioning Technical Note SITCOMTN-091, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-091.lsst.io/>
- [484] **[LTS-126]**, DeVries, J., 2014, *Calibration Screen Assembly to Dome Interface Drawing*, Telescope & Site Controlled Document LTS-126, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LTS-126>
- [485] DeWitt, D., 2008, MapReduce: A major step backwards, URL <https://web.archive.org/web/20090327050223/http://www.databasecolumn.com/2008/01/mapreduce-a-major-step-back.html>
- [486] DeWitt, D., 2008, MapReduce II, URL <https://web.archive.org/web/20090326224219/http://www.databasecolumn.com:80/2008/01/mapreduce-continued.html>
- [487] **[Publication-141]**, Dhital, S., et al., 2011, *Science White Paper for LSST Deep-Drilling Field Observations Mapping the Milky Way's Ultracool Dwarfs, Subdwarfs, and White Dwarfs*, LSST Construction Publication Publication-141, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Publication-141>
- [488] Dierckx, P., 1995, *C and Surface Fitting with Splines*, Oxford Science Publications, Oxford University Press, paperback edn.
- [489] **[LCA-13501]**, Digel, S., 2016, *Specification for FITS Image Files from Raft and Focal Plane-Level Electro-Optical Tests*, Tech. Rep. LCA-13501, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LCA-13501>
- [490] **[PP-22-0266]**, Directorate, N.S.A.C., 2022, Network infrastructure security guidance, URL https://media.defense.gov/2022/Mar/01/2002947139/-1/-1/0/CTR_NSA_NETWORK_INFRASTRUCTURE_SECURITY_GUIDANCE_20220301.PDF
- [491] **[NIST.FIPS.200]**, Division, C.S., 2006, Publication 200, minimum security requirements for federal information and information systems, URL <https://doi.org/10.6028/NIST.FIPS.200>, doi:10.6028/NIST.FIPS.200

- [492] **[DMTN-104]**, DMLT, 2020, *Data Management Detailed Product Tree*, Data Management Technical Note DMTN-104, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-104.lsst.io/>
- [493] **[LCA-10140]**, Doherty, P., Digel, S., 2016, *Specification for FITS Images from Electro-Optical Tests*, Tech. Rep. LCA-10140, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LCA-10140>
- [494] Dorigo, A., Elmer, P., Furano, F., Hanushevsky, A., 2005, *WSEAS Transactions on Computers*, 4, 348, URL http://xrootd.org/presentations/xpaper3_cut_journal.pdf
- [495] Dossa, D., Matarazzo, C., Marshall, S., et al., 2005, In: *American Astronomical Society Meeting Abstracts*, vol. 207 of *American Astronomical Society Meeting Abstracts*, 26.34, ADS Link
- [496] Dossa, D., Smith, R., Lambert, R., et al., 2006, In: Silva, D.R., Doxsey, R.E. (eds.) *Observatory Operations: Strategies, Processes, and Systems*, vol. 6270 of *Astronomical Telescopes and Instrumentation*, SPIE, SPIE
- [497] Dowler, P., Rixon, G., Tody, D., 2010, *Table Access Protocol Version 1.0*, IVOA Recommendation 27 March 2010 (arXiv:1110.0497), doi:10.5479/ADS/bib/2010ivoa.spec.0327D, ADS Link
- [498] Dowler, P.D., Gaudet, S., Durand, D., et al., 2007, In: Shaw, R.A., Hill, F., Bell, D.J. (eds.) *Astronomical Data Analysis Software and Systems XVI*, vol. 376 of *Astronomical Society of the Pacific Conference Series*, 347, ADS Link
- [499] **[SCTR-21]**, Drass, H., 2022, *LWV-P68: M2 Hexapod Functional Re-verification and Integration with SAL Test Plan and Report*, Commissioning Technical Report SCTR-21, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-21.lsst.io/>
- [500] **[SITCOMTN-102]**, Drass, H., 2024, *Technote Style and Writing Guide*, Commissioning Technical Note SITCOMTN-102, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-102.lsst.io/>
- [501] **[SCTR-14]**, Drass, H., 2025, *LWV-P63: Camera Hexapod Functional Re-Verification and Integration with SAL Test Plan and Report*, Commissioning Technical Report SCTR-14, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-14.lsst.io/>
- [502] Drimmel, R., Spergel, D.N., 2001, *ApJ*, 556, 181 (arXiv:astro-ph/0101259), doi:10.1086/321556, ADS Link

- [503] **[SITCOMTN-166]**, Drlica-Wagner, A., Taranto, A., Rodeghiero, G., et al., 2025, *Investigation of the Scratched Tape Scattered Light Artifact at Rubin Observatory*, Commissioning Technical Note SITCOMTN-166, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-166.lsst.io/>
- [504] **[DMTN-296]**, Drlica-Wagner, A., Neilsen, E., Jones, L., Ferguson, P., 2026, *Calculations of Image and Catalog Depth*, Data Management Technical Note DMTN-296, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-296.lsst.io/>
- [505] Drout, M.R., Chornock, R., Soderberg, A.M., et al., 2014, *ApJ*, 794, 23 (arXiv:1405.3668), doi:10.1088/0004-637X/794/1/23, ADS Link
- [506] **[RTN-057]**, Dubois, R., 2023, *L2-Ready for "DRP-like" Processing*, Technical Note RTN-057, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-057.lsst.io/>
- [507] **[RTN-073]**, Dubois, R., 2024, *Rules of Engagement for Accessing Data During the Embargo Period*, Technical Note RTN-073, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-073.lsst.io/>
- [508] **[RTN-074]**, Dubois, R., 2024, *Developing a USDF Outage Planning Board*, Technical Note RTN-074, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-074.lsst.io/>
- [509] **[RTN-079]**, Dubois, R., 2024, *USDF Bulk Data Transfer Policy*, Technical Note RTN-079, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-079.lsst.io/>
- [510] **[RTN-078]**, Dubois, R., Lim, K.T., 2025, *USDF Disaster Recovery Plan*, Technical Note RTN-078, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-078.lsst.io/>
- [511] **[RTN-021]**, Dubois, R., O'Mullane, W., 2022, *Data Facilities Transition Plan*, Technical Note RTN-021, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-021.lsst.io/>
- [512] **[LSE-75]**, Dubois-Felsmann, G., 2011, *Control System Interfaces between the Telescope and Data Management*, Systems Engineering Controlled Document LSE-75, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-75>
- [513] **[LSE-76]**, Dubois-Felsmann, G., 2011, *Infrastructure Interfaces between Summit Facility and Data Management*, Systems Engineering Controlled Document LSE-76, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-76>
- [514] **[LSE-77]**, Dubois-Felsmann, G., 2013, *Infrastructure Interfaces between Base Facility and Data Management*, Systems Engineering Controlled Document LSE-77, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-77>

- [515] **[LSE-81]**, Dubois-Felsmann, G., 2013, *LSST Science and Project Sizing Inputs*, Systems Engineering Controlled Document LSE-81, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-81>
- [516] **[LSE-69]**, Dubois-Felsmann, G., 2014, *Interface between the Camera and Data Management*, Systems Engineering Controlled Document LSE-69, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-69>
- [517] **[LSE-130]**, Dubois-Felsmann, G., 2015, *Support-Data Exchanges between Data Management and Camera*, Systems Engineering Controlled Document LSE-130, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-130>
- [518] **[LSE-68]**, Dubois-Felsmann, G., 2015, *Camera Data Acquisition Interface*, Systems Engineering Controlled Document LSE-68, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-68>
- [519] **[LSE-140]**, Dubois-Felsmann, G., 2016, *Auxiliary Instrumentation Interface between Data Management and Telescope*, Systems Engineering Controlled Document LSE-140, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-140>
- [520] **[DMTN-055]**, Dubois-Felsmann, G., 2017, *SuperTask Architecture and Design*, Data Management Technical Note DMTN-055, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-055.lsst.io/>
- [521] **[DMTN-076]**, Dubois-Felsmann, G., 2018, *Internet Endpoints for the Science Platform*, Data Management Technical Note DMTN-076, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-076.lsst.io/>
- [522] **[DMTN-139]**, Dubois-Felsmann, G., 2019, *LSST Image Service Architecture*, Data Management Technical Note DMTN-139, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-139.lsst.io/>
- [523] **[DMTR-161]**, Dubois-Felsmann, G., 2020, *LDM-503-10a: LSP with Authentication and TAP Test Plan and Report*, Data Management Test Report DMTR-161, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-161.lsst.io/>
- [524] **[DMTR-211]**, Dubois-Felsmann, G., 2020, *DM-SUIT-8: Portal Integrated with Workspace Test Plan and Report*, Data Management Test Report DMTR-211, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-211.lsst.io/>

- [525] **[DMTN-136]**, Dubois-Felsmann, G., 2021, *LSST Science Platform Portal Aspect Design and Maintenance Manual*, Data Management Technical Note DMTN-136, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-136.lsst.io/>
- [526] **[DMTN-202]**, Dubois-Felsmann, G., 2021, *Use cases and science requirements on a user batch facility*, Data Management Technical Note DMTN-202, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-202.lsst.io/>
- [527] **[DMTR-301]**, Dubois-Felsmann, G., 2021, *LDM-503-14a: RSP redeployed on the Interim Data Facility (IDF), ready for DP0.1 Test Plan and Report*, Data Management Test Report DMTR-301, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-301.lsst.io/>
- [528] **[DMTR-341]**, Dubois-Felsmann, G., 2021, *LWV-P91 November 2021 Rubin Science Platform Verification Campaign Test Plan and Report Test Plan and Report*, Data Management Test Report DMTR-341, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-341.lsst.io/>
- [529] **[DMTN-105]**, Dubois-Felsmann, G., 2023, *RSP Capabilities for AuxTel, Commissioning, and Early Operations*, Data Management Technical Note DMTN-105, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-105.lsst.io/>
- [530] **[DMTN-186]**, Dubois-Felsmann, G., 2023, *Conceptual design of a IVOA-service-availability service and associated UI*, Data Management Technical Note DMTN-186, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-186.lsst.io/>
- [531] **[DMTN-187]**, Dubois-Felsmann, G., 2023, *Options for the use and implementation of UWS services*, Data Management Technical Note DMTN-187, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-187.lsst.io/>
- [532] **[DMTN-195]**, Dubois-Felsmann, G., 2023, *Multi-image FITS convention with ASDF WCSes*, Data Management Technical Note DMTN-195, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-195.lsst.io/>
- [533] **[DMTN-239]**, Dubois-Felsmann, G., 2023, *Converting time-stream data to exposure/visit-indexed data, or "How to Create the Restructured EFD"*, Data Management Technical Note DMTN-239, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-239.lsst.io/>
- [534] **[DMTN-247]**, Dubois-Felsmann, G., 2023, *Technical definition of DP0.3 (Solar System data)*, Data Management Technical Note DMTN-247, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-247.lsst.io/>

- [535] **[DMTN-252]**, Dubois-Felsmann, G., 2023, *Convention for identifying bits in a mask/flags image in FITS*, Data Management Technical Note DMTN-252, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-252.lsst.io/>
- [536] **[DMTN-257]**, Dubois-Felsmann, G., 2023, *Summary of LSST Data Product Lifecycles*, Data Management Technical Note DMTN-257, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-257.lsst.io/>
- [537] **[DMTN-273]**, Dubois-Felsmann, G., 2023, *Felis validation and manipulation tools*, Data Management Technical Note DMTN-273, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-273.lsst.io/>
- [538] **[DMTR-381]**, Dubois-Felsmann, G., 2023, *LDM-503-RSPa: RSP on the Interim Data Facility (IDF) is ready for DP0.2 Test Plan and Report*, Data Management Test Report DMTR-381, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-381.lsst.io/>
- [539] **[RTN-050]**, Dubois-Felsmann, G., 2023, *Technical definition of DP0.3 (Solar System data)*, Technical Note RTN-050, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-050.lsst.io/>
- [540] **[LSE-61]**, Dubois-Felsmann, G., Jenness, T., 2019, *Data Management System (DMS) Requirements*, Systems Engineering Controlled Document LSE-61, NSF-DOE Vera C. Rubin Observatory, URL <https://lse-61.lsst.io/>, doi:10.71929/rubin/2587200
- [541] **[LSE-82]**, Dubois-Felsmann, G., Lim, K.T., 2013, *Science and Project Sizing Inputs Explanation*, Systems Engineering Controlled Document LSE-82, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-82>
- [542] **[LSE-72]**, Dubois-Felsmann, G., Schumacher, G., Selvy, B., 2014, *OCS Command Dictionary for Data Management*, Systems Engineering Controlled Document LSE-72, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-72>
- [543] **[LPM-231]**, Dubois-Felsmann, G., Ivezić, Z., Juric, M., 2018, *LSST Data Product Categories*, Project Controlled Document LPM-231, NSF-DOE Vera C. Rubin Observatory, URL <https://lpm-231.lsst.io/>
- [544] **[LDM-556]**, Dubois-Felsmann, G., Jenness, T., Bosch, J., et al., 2018, *Data Management Middleware Requirements*, Data Management Controlled Document LDM-556, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-556.lsst.io/>

- [545] **[LDM-554]**, Dubois-Felsmann, G., Ciardi, D., Mueller, F., Economou, F., 2019, *Data Management LSST Science Platform Requirements*, Data Management Controlled Document LDM-554, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-554.lsst.io/>
- [546] **[LDM-542]**, Dubois-Felsmann, G., Economou, F., Lim, K.T., et al., 2019, *Science Platform Design*, Data Management Controlled Document LDM-542, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-542.lsst.io/>
- [547] **[DMTN-275]**, Dubois-Felsmann, G.P., 2024, *Time Series Queries in the RSP*, Data Management Technical Note DMTN-275, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-275.lsst.io/>
- [548] **[DMTN-285]**, Dubois-Felsmann, G.P., 2024, *Application of hscMap to full-focal-plane visualization*, Data Management Technical Note DMTN-285, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-285.lsst.io/>
- [549] **[DMTN-307]**, Dubois-Felsmann, G.P., 2025, *Column groups in the SDM and the RSP*, Data Management Technical Note DMTN-307, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-307.lsst.io/>
- [550] **[DMTN-325]**, Dubois-Felsmann, G.P., 2025, *Configuration of Rubin TAP services with searchable geometry columns*, Data Management Technical Note DMTN-325, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-325.lsst.io/>
- [551] **[DMTR-52]**, Dubois-Felsmann, G.P., Wu, X., 2018, *LDM-503-1 (WISE Data Loaded in PDAC) Test Report*, Data Management Test Report DMTR-52, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-52.lsst.io/>
- [552] Dubois-Felsmann, G.P., Axelrod, T., Becker, A., et al., 2010, In: American Astronomical Society Meeting Abstracts #215, vol. 215 of American Astronomical Society Meeting Abstracts, 401.23, ADS Link
- [553] Dubois-Felsmann, G.P., Goldina, T., Ly, L., et al., 2016, In: American Astronomical Society Meeting Abstracts #227, vol. 227 of American Astronomical Society Meeting Abstracts, 348.06, doi:10.5281/zenodo.44653, ADS Link
- [554] **[LDM-540]**, Dubois-Felsmann, G.P., Guy, L., Carlin, J., et al., 2020, *LSST Science Platform Test Specification*, Data Management Controlled Document LDM-540, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-540.lsst.io/>
- [555] Dyke, P., 2009, Microsoft SQL Server Project code-named 'Madison', PASS Summit Unite, URL http://wiki.esi.ac.uk/w/files/5/5c/Dyke-Details_of_Project_Madison-1.pdf

- [556] EADS~Astrium, 2004, *GAIA Point Spread Function and internal straylight evaluation*, Tech. rep., ESA,
GAIASYS.NT.00134.T.ASTR
- [557] EADS~Astrium, 2010, *GAIA PLM TB/TV test specification: functional and performance tests*,
Tech. rep., ESA,
GAIA.ASF.SP.PLM.00174
- [558] EADS~Astrium, 2011, *Gaia Attitude- and Orbit-Control sub-System Normal Mode Final Tuning and Stability Analysis*, Tech. rep., ESA,
GAIA.ASU.TCN.ESM.00153
- [559] Economou, F., 2014, In: Taylor, A.R., Rosolowsky, E. (eds.) *Astronomical Data Analysis Software and Systems XXIV (ADASS XXIV)*, Astronomical Society of the Pacific Conference Series
- [560] **[SQR-004]**, Economou, F., 2015, *How to publish your proceedings with CoMPAAS*, SQuaRE Technical Note SQR-004, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-004.lsst.io/>
- [561] Economou, F., 2016, *Software development with distributed teams in large astronomy projects: The LSST experience (so far)*, URL <http://dx.doi.org/10.5281/zenodo.56342>,
Seminar given at SKA Headquarters, Jodrell Bank, 23rd June 2016,
doi:10.5281/zenodo.56342
- [562] Economou, F., 2016, *The astronomer, the software engineer, and the cloud*, URL <http://dx.doi.org/10.5281/zenodo.>,
Talk at the SPIE Astronomical Telescopes and Instrumentation Conference, Edinburgh, UK,
doi:10.5281/zenodo.
- [563] **[DMTN-016]**, Economou, F., 2016, *Towards LSE-63 and beyond: A technical roadmap from QA to Level 3*, Data Management Technical Note DMTN-016, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-016.lsst.io/>
- [564] **[SQR-010]**, Economou, F., 2017, *SQuaRE services: An Overview*, SQuaRE Technical Note SQR-010, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-010.lsst.io/>
- [565] **[PSTN-022]**, Economou, F., 2019, *LSST Science Platform*, Project Science Technical Note PSTN-022, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-022.lsst.io/>

- [566] **[DMTN-173]**, Economou, F., 2020, *The Observatory Logging Ecosystem*, Data Management Technical Note DMTN-173, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-173.lsst.io/>
- [567] **[SQR-036]**, Economou, F., 2020, *Operational models for generalist teams*, SQuaRE Technical Note SQR-036, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-036.lsst.io/>
- [568] **[DMTN-212]**, Economou, F., 2023, *The Rubin Science Platform*, Data Management Technical Note DMTN-212, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-212.lsst.io/>
- [569] **[DMTN-278]**, Economou, F., 2024, *Keep Calm and Carry On Improving Things: A sustainable model for first-rate observatory operations.*, Data Management Technical Note DMTN-278, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-278.lsst.io/>
- [570] **[DMTN-292]**, Economou, F., 2024, *From observatory summit to the cloud: a general approach to service deployment and configuration management*, Data Management Technical Note DMTN-292, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-292.lsst.io/>
- [571] **[DMTN-305]**, Economou, F., 2024, *Rubin Science Platform issue tracker: roadmap and topics for further discussion*, Data Management Technical Note DMTN-305, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-305.lsst.io/>
- [572] **[SQR-016]**, Economou, F., 2024, *Stack release playbook*, SQuaRE Technical Note SQR-016, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-016.lsst.io/>
- [573] **[SQR-087]**, Economou, F., 2024, *Structured information service: preliminary notes*, SQuaRE Technical Note SQR-087, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-087.lsst.io/>
- [574] **[DMTN-333]**, Economou, F., 2025, *Data Publication improvements roadmap*, Data Management Technical Note DMTN-333, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-333.lsst.io/>
- [575] **[SQR-081]**, Economou, F., 2025, *On Recruiting*, SQuaRE Technical Note SQR-081, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-081.lsst.io/>, doi:10.71929/rubin/2574487
- [576] **[SQR-100]**, Economou, F., 2025, *Contributing capabilities to data.lsst.cloud*, SQuaRE Technical Note SQR-100, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-100.lsst.io/>

- [577] **[SQR-056]**, Economou, F., Allbery, R., 2021, *Guidelines for gated updates for SQuaRE services (including Science Platform)*, SQuaRE Technical Note SQR-056, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-056.lsst.io/>
- [578] **[SQR-080]**, Economou, F., Allbery, R., 2024, *Health-check notebooks organisation and mobu roadmap*, SQuaRE Technical Note SQR-080, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-080.lsst.io/>
- [579] **[DMTN-321]**, Economou, F., Dubois-Felsmann, G.P., 2025, *Process and tooling recommendations for future Data Releases drawn from the experience of Data Preview 1*, Data Management Technical Note DMTN-321, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-321.lsst.io/>
- [580] **[RTN-105]**, Economou, F., Guy, L., 2025, *Contributing capabilities to the Rubin Science Platform*, Technical Note RTN-105, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-105.lsst.io/>
- [581] **[DMTN-207]**, Economou, F., Jenness, T., 2021, *Architecture for the DM-to-EPO data export for Citizen Science projects*, Data Management Technical Note DMTN-207, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-207.lsst.io/>
- [582] **[RTN-066]**, Economou, F., Shugart, A., 2025, *JIRA workflows for operations*, Technical Note RTN-066, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-066.lsst.io/>
- [583] **[RTN-018]**, Economou, F., Sick, J., 2021, *Community Forum Delivery Note*, Technical Note RTN-018, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-018.lsst.io/>
- [584] **[SQR-084]**, Economou, F., Sick, J., 2024, *Using Times Square for observatory reporting*, SQuaRE Technical Note SQR-084, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-084.lsst.io/>
- [585] **[SQR-003]**, Economou, F., team, T.S., 2022, *SQuaRE Overview*, SQuaRE Technical Note SQR-003, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-003.lsst.io/>
- [586] **[SQR-018]**, Economou, F., Thornton, A., 2019, *Investigations into JupyterLab as a basis for the LSST Science Platform*, SQuaRE Technical Note SQR-018, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-018.lsst.io/>
- [587] **[LDM-522]**, Economou, F., Wood-Vasey, M., 2017, *DM Science Quality Data Assurance System Conceptual Design*, Data Management Controlled Document LDM-522, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-522>

- [588] **[DMTR-11]**, Economou, F., Swinbank, J., Bosch, J., Krughoff, S., 2015, *Characterization Metric Report: Science Pipelines Version 11.0 (Summer 2015)*, Data Management Test Report DMTR-11, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/DMTR-11>
- [589] **[SQR-005]**, Economou, F., Ivezić, Ž., Jenness, T., 2016, *Publication Board JIRA Project - User Note*, SQuaRE Technical Note SQR-005, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-005.lsst.io/>
- [590] **[SQR-001]**, Economou, F., Peterson, J.M., Hoblitt, J., 2017, *Git LFS Architecture Note*, SQuaRE Technical Note SQR-001, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-001.lsst.io/>
- [591] **[DMTN-124]**, Economou, F., Krughoff, S., Fausti, A., et al., 2019, *Automated Quality Control Systems*, Data Management Technical Note DMTN-124, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-124.lsst.io/>
- [592] **[SQR-029]**, Economou, F., Krughoff, S., Sick, J., et al., 2019, *DM-EFD prototype implementation*, SQuaRE Technical Note SQR-029, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-029.lsst.io/>
- [593] **[SQR-035]**, Economou, F., Sick, J., Banek, C., et al., 2019, *Deployment engineering for Kubernetes-based services.*, SQuaRE Technical Note SQR-035, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-035.lsst.io/>
- [594] **[DMTN-185]**, Economou, F., Dubois-Felsmann, G., Bechtol, K., et al., 2021, *A Survey of Provenance*, Data Management Technical Note DMTN-185, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-185.lsst.io/>
- [595] **[RTN-019]**, Economou, F., Thornton, A., Banek, C., Allbery, R., Krughoff, S., 2021, *Science Platform Use for Summit Operations: Delivery Note*, Technical Note RTN-019, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-019.lsst.io/>
- [596] **[SQR-061]**, Economou, F., Allbery, R., Thornton, A.J., Sick, J., 2025, *Monitoring architecture for the RSP*, SQuaRE Technical Note SQR-061, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-061.lsst.io/>
- [597] **[DMTN-109]**, Egg, S., Jones, L., Jurić, M., 2019, *LSST Asteroid Discovery Rates*, Data Management Technical Note DMTN-109, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-109.lsst.io/>

- [598] Egl, S., Juric, M., Moeyens, J., Jones, L., 2020, In: AAS/Division for Planetary Sciences Meeting Abstracts, vol. 52 of AAS/Division for Planetary Sciences Meeting Abstracts, 211.01, ADS Link
- [599] EMC, 2011, *Greenplum Database 4.1 Administrator Guide*, Tech. rep., EMC Corporation, URL <http://www.greenplum.com/community/downloads/documentation/>
- [600] EMC, 2011, *Greenplum Database 4.1 Installation Guide*, Tech. rep., EMC Corporation, URL <http://www.greenplum.com/community/downloads/documentation/>
- [601] **[LSE-89]**, Emmons, B., Bauer, A., 2018, *Education and Public Outreach Requirements*, Systems Engineering Controlled Document LSE-89, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-89>
- [602] ESA (ed.), 1997, *The HIPPARCOS and TYCHO catalogues. Astrometric and photometric star catalogues derived from the ESA HIPPARCOS Space Astrometry Mission*, vol. 1200 of ESA Special Publication, ADS Link
- [603] ESA, 1997, *The Hipparcos and Tycho Catalogues*, ESA, ESA SP-1200
- [604] ESA, 2000, *GAIA — Composition, Formation and Evolution of the Galaxy*, Tech. rep., ESA, Concept and Technology Study Report, ESA-SCI(2000)4
- [605] **[ESA/SPC(2009)6]**, ESA, 2009, *Licensing of Data Processing Software for the Science Programme*, ESA/SPC(2009)6
- [606] **[ECSS-M-30-01A]**, ESA Publications Division, 1999, *Organization and Conduct of Reviews*, ECSS-M-30-01A
- [607] **[ECSS-M-00-02A]**, ESA Publications Division, 2000, *Project Organisation*, ECSS-M-00-02A
- [608] **[ECSS-E-10-6a]**, ESA Publications Division, 2003, *Functional and Technical Specifications*, ECSS-E-10 part 6a
- [609] **[ECSS-Q-80B]**, ESA Publications Division, 2003, *Software Product Assurance*, ECSS-Q-80B
- [610] **[ECSS-M-10B]**, ESA Publications Division, 2003, *Project Breakdown Structures*, ECSS-M-10B

- [611] **[ECSS-M-20B]**, ESA Publications Division, 2003, *Project Organisation*,
ECSS-M-20B
- [612] **[ECSS-M-30B]**, ESA Publications Division, 2003, *Project Phasing and Planning*,
ECSS-M-30B
- [613] **[ECSS-M-40B]**, ESA Publications Division, 2003, *Space Project Management - configuration management*,
ECSS-M-40B
- [614] **[ECSS-M-50B]**, ESA Publications Division, 2003, *Space Project Management - information/documentation management*,
ECSS-M-50B Draft 8
- [615] **[ECSS-E-40-1B]**, ESA Publications Division, 2003, *Space engineering - Software - Part 1: Principles and requirements*,
ECSS-E-40 Part 1B
- [616] **[ECSS-E-40-2B]**, ESA Publications Division, 2005, *Space engineering - Software - Part 2: Document Requirements Definitions*,
ECSS-E-40 Part 2B
- [617] **[ECSS-M-ST-60C]**, ESA Publications Division, 2008, *Space project management - Cost and schedule management*,
ECSS-M-ST-60C
- [618] **[ECSS-M-ST-10C]**, ESA Publications Division, 2008, *Space project management - Project planning and implementation*,
ECSS-M-ST-10C
- [619] **[SITCOMTN-035]**, Esteves, J., 2022, *Checking The AuxTel Pointing Model*, Commissioning Technical Note SITCOMTN-035, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-035.lsst.io/>
- [620] **[SITCOMTN-090]**, Esteves, J., 2023, *Auxtel Pinhole Observations Notes*, Commissioning Technical Note SITCOMTN-090, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-090.lsst.io/>
- [621] **[SITCOMTN-064]**, Esteves, J.H., 2024, *Startracker: Star Trails - Center Finder*, Commissioning Technical Note SITCOMTN-064, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-064.lsst.io/>

- [622] **[SITCOMTN-065]**, Esteves, J.H., 2024, *TMA 3.5 degree offset repeatability analysis*, Commissioning Technical Note SITCOMTN-065, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-065.lsst.io/>
- [623] **[SITCOMTN-181]**, Esteves, J.H., 2026, *Rotator Rigid-Body Model Using LSSTCam Guider Sensors*, Commissioning Technical Note SITCOMTN-181, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-181.lsst.io/>
- [624] Esteves, J.H., Utsumi, Y., Snyder, A., et al., 2023, *PASP*, 135, 115003 (arXiv:2308.00919), doi:10.1088/1538-3873/ad0a73, ADS Link
- [625] Euclid Collaboration, Romelli, E., Kümmel, M., et al., 2025, arXiv e-prints, arXiv:2503.15305 (arXiv:2503.15305), doi:10.48550/arXiv.2503.15305, ADS Link
- [626] Evans, N.W., Belokurov, V., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special Publication, 385 (arXiv:astro-ph/0411439), doi:10.48550/arXiv.astro-ph/0411439, ADS Link
- [627] Eyer, L., 1998, *Les étoiles variables de la mission HIPPARCOS Les étoiles variables de la mission HIPPARCOS The variable stars of the HIPPARCOS mission*; Ph.D. thesis, University of Geneva, Switzerland
- [628] Eyer, L., 2002, *Acta Astron.*, 52, 241 (arXiv:astro-ph/0206074), doi:10.48550/arXiv.astro-ph/0206074, ADS Link
- [629] Eyer, L., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special Publication, 513 (arXiv:astro-ph/0411674), doi:10.48550/arXiv.astro-ph/0411674, ADS Link
- [630] Eyer, L., 2006, In: Aerts, C., Sterken, C. (eds.) *Astrophysics of Variable Stars*, vol. 349 of *Astronomical Society of the Pacific Conference Series*, 15 (arXiv:astro-ph/0511458), doi:10.48550/arXiv.astro-ph/0511458, ADS Link
- [631] Eyer, L., 2006, *Mem. Soc. Ast. Italiana*, 77, 549 (arXiv:astro-ph/0511460), doi:10.48550/arXiv.astro-ph/0511460, ADS Link
- [632] Eyer, L., Blake, C., 2002, In: Aerts, C., Bedding, T.R., Christensen-Dalsgaard, J. (eds.) *IAU Colloquium 185: Radial and Nonradial Pulsations as Probes of Stellar Physics*, vol. 259 of *Astronomical Society of the Pacific Conference Series*, 160 (arXiv:astro-ph/0110071), doi:10.48550/arXiv.astro-ph/0110071, ADS Link

- [633] Eyer, L., Blake, C., 2005, MNRAS, 358, 30 (arXiv:astro-ph/0406333), doi:10.1111/j.1365-2966.2005.08651.x, ADS Link
- [634] Eyer, L., Cuypers, J., 2000, In: Szabados, L., Kurtz, D. (eds.) IAU Colloquium 176: The Impact of Large-Scale Surveys on Pulsating Star Research, vol. 203 of Astronomical Society of the Pacific Conference Series, 71–72 (arXiv:astro-ph/0002383), doi:10.48550/arXiv.astro-ph/0002383, ADS Link
- [635] Eyer, L., Grenon, M., 1997, In: Battrick, B. (ed.) Hipparcos - Venice 1997, vol. 402 of ESA Special Publication, 467–472, ADS Link
- [636] Eyer, L., Mignard, F., 2005, MNRAS, 361, 1136, doi:10.1111/j.1365-2966.2005.09266.x, ADS Link
- [637] Fabricius, C., Torra, J., GDAAS Algorithm Preparation Guidelines, CCB-GDAAS-002
- [638] **[TSTN-032]**, Fagrelus, P., 2022, *AuxTel Illumination System Handbook*, Telescope and Site Technical Note TSTN-032, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-032.lsst.io/>
- [639] **[TSTN-036]**, Fagrelus, P., 2022, *AuxTel Calibration Illumination Control with Lab Jack*, Telescope and Site Technical Note TSTN-036, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-036.lsst.io/>
- [640] **[SITCOMTN-049]**, Fagrelus, P., 2023, *Flat Field Calibration Exposure Time Calculator*, Commissioning Technical Note SITCOMTN-049, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-049.lsst.io/>
- [641] **[SITCOMTN-062]**, Fagrelus, P., 2023, *Calibration Laser Operation*, Commissioning Technical Note SITCOMTN-062, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-062.lsst.io/>
- [642] **[SITCOMTN-070]**, Fagrelus, P., 2023, *Collimated Beam Projector (CBP) Exposure Time Calculator*, Commissioning Technical Note SITCOMTN-070, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-070.lsst.io/>
- [643] **[TSTN-039]**, Fagrelus, P., 2023, *Calibration Laser Electronics Cabinet*, Telescope and Site Technical Note TSTN-039, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-039.lsst.io/>

- [644] **[TSTN-040]**, Fagrelus, P., 2023, *Tunable Laser Thermal Tests*, Telescope and Site Technical Note TSTN-040, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-040.lsst.io/>
- [645] **[TSTN-041]**, Fagrelus, P., 2023, *Adjustment of CBP Primary Mirror*, Telescope and Site Technical Note TSTN-041, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-041.lsst.io/>
- [646] **[SITCOMTN-110]**, Fagrelus, P., 2024, *TMA Performance Settings vs Capacitor Bank*, Commissioning Technical Note SITCOMTN-110, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-110.lsst.io/>
- [647] **[TSTN-042]**, Fagrelus, P., 2024, *Calibration FlatField Projector Electronics Cabinet*, Telescope and Site Technical Note TSTN-042, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-042.lsst.io/>
- [648] **[TSTN-049]**, Fagrelus, P., 2026, *Calibration Reflector*, Telescope and Site Technical Note TSTN-049, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-049.lsst.io/>
- [649] **[TSTN-057]**, Fagrelus, P., 2026, *Calibration Screen*, Telescope and Site Technical Note TSTN-057, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-057.lsst.io/>
- [650] **[SITCOMTN-086]**, Fagrelus, P., Rykoff, E.S., 2025, *Rubin Observatory Baseline Calibration Plan*, Commissioning Technical Note SITCOMTN-086, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-086.lsst.io/>, doi:10.71929/rubin/2583850
- [651] Fankhauser, F., Tyson, J.A., Askari, J., 2023, *AJ*, 166, 59 (arXiv:2305.11123), doi:10.3847/1538-3881/ace047, ADS Link
- [652] **[TSTN-054]**, Fanning, K., 2025, *DIMM CSC Usage and Features*, Telescope and Site Technical Note TSTN-054, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-054.lsst.io/>
- [653] **[DMTN-329]**, Faris, Y., 2025, *Brighter-Fatter effect in LSSTCam CCD sensors*, Data Management Technical Note DMTN-329, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-329.lsst.io/>
- [654] **[SQR-008]**, Fausti, A., 2016, *SQUASH QA database*, SQuaRE Technical Note SQR-008, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-008.lsst.io/>
- [655] **[SQR-022]**, Fausti, A., 2018, *Creating new charts with the Bokeh Models API*, SQuaRE Technical Note SQR-022, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-022.lsst.io/>
- [656] **[SQR-027]**, Fausti, A., 2018, *Getting SQuaSH metrics to Honeycomb*, SQuaRE Technical Note SQR-027, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-027.lsst.io/>

- [657] **[SQR-033]**, Fausti, A., 2019, *QA Strategy Working Group recommendations for SQuaSH*, SQuaRE Technical Note SQR-033, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-033.lsst.io/>
- [658] **[SQR-009]**, Fausti, A., 2020, *The SQuaSH metrics dashboard*, SQuaRE Technical Note SQR-009, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-009.lsst.io/>
- [659] **[SQR-031]**, Fausti, A., 2020, *EFD deployment instructions*, SQuaRE Technical Note SQR-031, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-031.lsst.io/>
- [660] **[SQR-038]**, Fausti, A., 2020, *Implementation plan for the LDF EFD*, SQuaRE Technical Note SQR-038, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-038.lsst.io/>
- [661] **[SQR-040]**, Fausti, A., 2020, *The EFD Aggregator*, SQuaRE Technical Note SQR-040, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-040.lsst.io/>
- [662] **[SQR-050]**, Fausti, A., 2021, *The EFD replication service*, SQuaRE Technical Note SQR-050, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-050.lsst.io/>
- [663] **[SQR-053]**, Fausti, A., 2021, *Representing missing values in the EFD*, SQuaRE Technical Note SQR-053, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-053.lsst.io/>
- [664] **[SQR-057]**, Fausti, A., 2021, *Using Velero to back up Kubernetes resources*, SQuaRE Technical Note SQR-057, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-057.lsst.io/>
- [665] **[SQR-058]**, Fausti, A., 2021, *The EFD Transformation Service*, SQuaRE Technical Note SQR-058, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-058.lsst.io/>
- [666] **[SQR-067]**, Fausti, A., 2022, *Sasquatch: SQuaRE's Telemetry Service*, SQuaRE Technical Note SQR-067, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-067.lsst.io/>
- [667] **[SQR-034]**, Fausti, A., 2023, *EFD Operations*, SQuaRE Technical Note SQR-034, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-034.lsst.io/>
- [668] **[SQR-068]**, Fausti, A., 2023, *Sasquatch: beyond the EFD*, SQuaRE Technical Note SQR-068, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-068.lsst.io/>
- [669] **[SQR-085]**, Fausti, A., 2025, *USDF EFD storage requirements*, SQuaRE Technical Note SQR-085, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-085.lsst.io/>
- [670] **[SQR-113]**, Fausti, A., 2026, *EFD Schema Improvements*, SQuaRE Technical Note SQR-113, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-113.lsst.io/>

- [671] **[SQR-026]**, Fausti, A., Economou, F., Krughoff, S., 2018, *Periodic report generation and publication via notebook templates*, SQuaRE Technical Note SQR-026, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-026.lsst.io/>
- [672] **[DMTN-290]**, Fausti Neto, A., 2024, *Sasquatch: Rubin Observatory metrics and telemetry service*, Data Management Technical Note DMTN-290, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-290.lsst.io/>
- [673] **[SQR-115]**, Fausti Neto, A., 2026, *RSP Visit metadata enrichment service*, SQuaRE Technical Note SQR-115, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-115.lsst.io/>
- [674] Fausti Neto, A., Economou, F., Reuter, M.A., et al., 2024, In: Ibsen, J., Chiozzi, G. (eds.) *Software and Cyberinfrastructure for Astronomy VIII*, vol. 13101 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 131011M, doi:10.1117/12.3019081, ADS Link
- [675] **[Publication-142]**, Ferguson, H.C., 2011, *Science White Paper for LSST Deep-Drilling Field Observations: LSST Deep Drilling for Galaxies*, LSST Construction Publication Publication-142, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Publication-142>
- [676] **[SITCOMTN-068]**, Ferguson, P., 2023, *TMA slewing rates*, Commissioning Technical Note SITCOMTN-068, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-068.lsst.io/>
- [677] **[SCTR-117]**, Ferguson, P., 2025, *System-level Science Verification Acceptance Test Campaign: Sample Production Test Plan and Report*, Commissioning Technical Report SCTR-117, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-117.lsst.io/>
- [678] **[SITCOMTN-124]**, Ferguson, P.S., Carlin, J.L., 2025, *Metrics and Plots Available in Com-Cam On-Sky Data*, Commissioning Technical Note SITCOMTN-124, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-124.lsst.io/>
- [679] **[SITCOMTN-080]**, Ferguson, P.S., Neill, D.R., Sanmartim, D., et al., 2024, *TMA torque analysis (with M1M3)*, Commissioning Technical Note SITCOMTN-080, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-080.lsst.io/>
- [680] **[SITCOMTN-088]**, Ferguson, P.S., Sevilla, I., Hernández, J., 2024, *Summary of M1M3 Tests*, Commissioning Technical Note SITCOMTN-088, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-088.lsst.io/>
- [681] **[SITCOMTN-081]**, Ferguson, P.S., Park, H.Y., Sevilla-Noarbe, I., Toribio San Cipriano, L., 2025, *Oscillations in the hardpoint forces of M1M3*, Commissioning Technical Note SITCOMTN-081, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-081.lsst.io/>

- [682] **[DMTN-277]**, Ferguson, P.S., Rykoff, E.S., Carlin, J.L., Saunders, C., Parejko, J.K., 2025, *The Monster: A reference catalog with synthetic ugrizy-band fluxes for the Vera C. Rubin observatory*, Data Management Technical Note DMTN-277, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-277.lsst.io/>, doi:10.71929/rubin/2583688
- [683] Fernandez, M.M., 2005, *Gaia TT&C Subsystem Analysis*, Tech. rep., ESA, Note prepared at request of Project team
- [684] Fernique, P., Boch, T., Donaldson, T., et al., 2014, MOC - HEALPix Multi-Order Coverage map Version 1.0, IVOA Recommendation 02 June 2014 (arXiv:1505.02937), doi:10.5479/ADS/bib/2014ivoa.spec.0602F, ADS Link
- [685] Fernique, P., Allen, M.G., Boch, T., et al., 2015, A&A, 578, A114 (arXiv:1505.02291), doi:10.1051/0004-6361/201526075, ADS Link
- [686] Few, S., 2013, *Information Dashboard Design*, Analytics Press, 2 edn.
- [687] Fienga, A., Laskar, J., Simon, J.L., Manche, H., Gastineau, M., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special Publication, 293, ADS Link
- [688] Filippenko, A.V., 1982, PASP, 94, 715, doi:10.1086/131052, ADS Link
- [689] **[DMTN-045]**, Findeisen, K., 2017, *PSF Fitting: Literature Overview*, Data Management Technical Note DMTN-045, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-045.lsst.io/>
- [690] **[DMTN-054]**, Findeisen, K., 2017, *Conventions Used by ap_verify*, Data Management Technical Note DMTN-054, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-054.lsst.io/>
- [691] **[DMTN-057]**, Findeisen, K., 2018, *Integrating Verification Metrics into the LSST DM Stack*, Data Management Technical Note DMTN-057, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-057.lsst.io/>
- [692] **[DMTN-098]**, Findeisen, K., 2019, *Metrics Measurement Framework Design*, Data Management Technical Note DMTN-098, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-098.lsst.io/>
- [693] **[DMTN-120]**, Findeisen, K., Bosch, J., 2020, *Improving Extensibility in afw.image.Exposure and Replacing afw.table.io*, Data Management Technical Note DMTN-120, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-120.lsst.io/>

- [694] **[DMTN-260]**, Findeisen, K., Lim, K.T., Bellm, E.C., Chiang, H.F., Parejko, J.K., 2025, *Failure Modes and Error Handling for Prompt Processing*, Data Management Technical Note DMTN-260, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-260.lsst.io/>, doi:10.71929/rubin/2998133
- [695] Finkbeiner, D.P., Davis, M., Schlegel, D.J., 1999, *ApJ*, 524, 867 (arXiv:astro-ph/9905128), doi:10.1086/307852, ADS Link
- [696] **[SITCOMTN-033]**, Fisher-Levine, M., 2022, *SITCOM Developer Guide*, Commissioning Technical Note SITCOMTN-033, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-033.lsst.io/>
- [697] **[SITCOMTN-098]**, Fisher-Levine, M., 2023, *TMA Event Generation*, Commissioning Technical Note SITCOMTN-098, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-098.lsst.io/>
- [698] **[SITCOMTN-100]**, Fisher-Levine, M., 2024, *The Rapid Analysis Framework and RubinTV*, Commissioning Technical Note SITCOMTN-100, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-100.lsst.io/>
- [699] Foley, M.J., 2011, Microsoft drops Dryad; puts its big-data bets on Hadoop, URL <http://www.zdnet.com/article/microsoft-drops-dryad-puts-its-big-data-bets-on-hadoop/>
- [700] for Software Standardisation, ESA Board and Control, 2004, *Java Coding Standards*, Tech. rep., ESA, URL http://www.rssd.esa.int/llink/livelink/Java_coding_standards.pdf?func=doc.Fetch&nodeId=504569&docTitle=Java+coding+standards&vernum=1
- [701] **[NIST.800-53]**, FORCE, J.T., 2020, *COMPUTER SECURITY*, URL <https://doi.org/10.6028/NIST.SP.800-53r5>, doi:10.6028/NIST.SP.800-53r5
- [702] Fornies-Marquina, J., Letosa, J., García-Gracia, M., Artacho, J., 1997, *IEEE transactions on magnetics*, 33, 1456
- [703] Förster, F., Maureira, J.C., San Martín, J., et al., 2016, *ApJ*, 832, 155 (arXiv:1609.03567), doi:10.3847/0004-637X/832/2/155, ADS Link
- [704] Förster, F., Cabrera-Vives, G., Castillo-Navarrete, E., et al., 2021, *AJ*, 161, 242 (arXiv:2008.03303), doi:10.3847/1538-3881/abe9bc, ADS Link
- [705] Fortino, W.F., Bernstein, G.M., Bernardinelli, P.H., et al., 2021, *AJ*, 162, 106 (arXiv:2010.13742), doi:10.3847/1538-3881/ac0722, ADS Link

- [706] Fraedrich, R., Schneider, J., Westermann, R., 2009, IEEE Transactions on Visualization and Computer Graphics, 15, 1251, doi:10.1109/TVCG.2009.142
- [707] Freemon, D.M., 2013, arXiv e-prints, arXiv:1303.7467 (arXiv:1303.7467), doi:10.48550/arXiv.1303.7467, ADS Link
- [708] Freemon, D.M., 2014, arXiv e-prints, arXiv:1410.1939 (arXiv:1410.1939), doi:10.48550/arXiv.1410.1939, ADS Link
- [709] Freemon, D.M., Becla, J., Dubois-Felsmann, G.P., et al., 2011, In: Astronomical Data Analysis Software and Systems XXI, LSST Corporation, URL <https://www.eso.org/sci/php/meetings/adass2011/Slides/PDF/Posters/P045.pdf>
- [710] Freemon, D.M., Lim, K.T., Becla, J., Dubois-Felsman, G.P., Kantor, J., 2012, In: Radziwill, N.M., Chiozzi, G. (eds.) Software and Cyberinfrastructure for Astronomy II, vol. 8451 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 84510V, doi:10.1117/12.926596, ADS Link
- [711] **[LDM-143]**, Freemon, M., Pietrowicz, S., 2013, *Site Specific Infrastructure Estimation Explanation*, Data Management Controlled Document LDM-143, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-143>
- [712] **[LDM-144]**, Freemon, M., Pietrowicz, S., Alt, J., 2016, *Site Specific Infrastructure Estimation Model*, Data Management Controlled Document LDM-144, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-144>
- [713] Fried, D.L., 1966, Journal of the Optical Society of America (1917-1983), 56, 1372, doi:10.1364/JOSA.56.001372, ADS Link
- [714] **[SQR-103]**, Fuchs, D.C., 2025, *Error reporting for Safir apps*, SQuaRE Technical Note SQR-103, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-103.lsst.io/>
- [715] **[SQR-108]**, Fuchs, D.C., 2025, *Rebuilding GKE Kubernetes clusters*, SQuaRE Technical Note SQR-108, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-108.lsst.io/>
- [716] **[SQR-089]**, Fuchs, D.C., Economou, F., 2025, *Metrics for Phalanx applications*, SQuaRE Technical Note SQR-089, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-089.lsst.io/>
- [717] Fukugita, M., Ichikawa, T., Gunn, J.E., et al., 1996, AJ, 111, 1748, doi:10.1086/117915, ADS Link

- [718] Furnell, R., 2005, *Gaia Space/Ground Interface Control Document Volume 1: RF Interface*, Tech. rep., ESA/ESOC, GAIA-ESC-ICD-515
- [719] Furnell, R., 2005, *Gaia Space/Ground Interface Control Document Volume 2: Generic Packet Structure*, Tech. rep., ESA/ESOC, GAIA-ESC-ICD-516
- [720] Gai, M., Busonero, D., Gardiol, D., Loreggia, D., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special Publication, 433, ADS Link
- [721] Gaia Acronyms, URL <http://www.rssd.esa.int/Ageneral/Projects/GAIA/paramdb/glossary.txt>, Gaia Acronyms List
- [722] Gaia Collaboration, Brown, A.G.A., Vallenari, A., et al., 2016, *A&A*, 595, A2 (arXiv:1609.04172), doi:10.1051/0004-6361/201629512, ADS Link
- [723] Gaia Collaboration, Prusti, T., de Bruijne, J.H.J., et al., 2016, *A&A*, 595, A1 (arXiv:1609.04153), doi:10.1051/0004-6361/201629272, ADS Link
- [724] Gaia Collaboration, Montegriffo, P., Bellazzini, M., et al., 2023, *A&A*, 674, A33 (arXiv:2206.06215), doi:10.1051/0004-6361/202243709, ADS Link
- [725] Gaia Collaboration, Vallenari, A., Brown, A.G.A., et al., 2023, *A&A*, 674, A1 (arXiv:2208.00211), doi:10.1051/0004-6361/202243940, ADS Link
- [726] Gamma, E., Helm, R., Johnson, R., Vlissides, J., 1994, *Design Patterns: Elements of Reusable Object-Oriented Software*, Addison-Wesley Professional Computing Series
- [727] **[DMTN-029]**, Gaponenko, I., 2017, *Loading SDSS Stripe82 Catalogs into PDAC*, Data Management Technical Note DMTN-029, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-029.lsst.io/>
- [728] Gardiol, D., Loreggia, D., Mannu, S., et al., 2004, In: Craig, S.C., Cullum, M.J. (eds.) *Modeling and Systems Engineering for Astronomy*, vol. 5497 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 461–470, doi:10.1117/12.550356, ADS Link

- [729] Gaudet, S., Hill, N., Armstrong, P., et al., 2010, In: Radziwill, N.M., Bridger, A. (eds.) Software and Cyberinfrastructure for Astronomy, vol. 7740 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 77401I, doi:10.1117/12.858026, ADS Link
- [730] **[Publication-143]**, Gawiser, E., et al., 2011, *Science White Paper for LSST Deep-Drilling Field Observations: Ultra-deep ugrizy Imaging to Reduce Main Survey Photo-z Systematics and to Probe Faint Galaxy Clustering, AGN, and Strong Lenses*, LSST Construction Publication Publication-143, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Publication-143>
- [731] **[DMTN-011]**, Gee, P., 2016, *Testing Shear Bias Using Galsim Galaxy Simulations*, Data Management Technical Note DMTN-011, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-011.lsst.io/>
- [732] **[LPM-18]**, Gessner, C., Krabbendam, V., 2014, *Safety Policy*, Project Controlled Document LPM-18, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-18>
- [733] Gibson, R., 2011, In: Very Wide Field Surveys in the Light of Astro2010, University of Washington, Space Telescope Science Institute
- [734] Gibson, R.R., Ahmad, Z., Bankert, J., et al., 2011, In: Evans, I.N., Accomazzi, A., Mink, D.J., Rots, A.H. (eds.) Astronomical Data Analysis Software and Systems XX, vol. 442 of Astronomical Society of the Pacific Conference Series, 329, ADS Link
- [735] Gielesen, W., de Bruijn, D., van den Dool, T., et al., 2012, In: Clampin, M.C., Fazio, G.G., MacEwen, H.A., Oschmann, J.M., Jr. (eds.) Space Telescopes and Instrumentation 2012: Optical, Infrared, and Millimeter Wave, vol. 8442 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 84421R, doi:10.1117/12.926322, ADS Link
- [736] **[Document-24920]**, Gill, R., 2018, *LSST COMMUNICATIONS CODE OF CONDUCT*, Informal Construction Document Document-24920, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-24920>
- [737] **[Document-28973]**, Gill, R., 2018, *LSST MEETINGS CODE OF CONDUCT*, Informal Construction Document Document-28973, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-28973>
- [738] **[Document-3607]**, Gill, R., 2022, *Funding Acknowledgements: Requirements and Boilerplate Language*, Informal Construction Document Document-3607, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-3607>

- [739] Gill, R., Gracia, G., Lupton, R.H., O'Mullane, W., 2014, In: Angeli, G.Z., Dierickx, P. (eds.) *Modeling, Systems Engineering, and Project Management for Astronomy VI*, vol. 9150 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 91501E, doi:10.1117/12.2054745, ADS Link
- [740] **[RTN-081]**, Gill, R.K., 2024, *Rubin Observatory Operations: Enabling collaborative ground-up budget planning across a multi-team organization*, Technical Note RTN-081, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-081.lsst.io/>
- [741] Gilmore, G.F., de Boer, K.S., Favata, F., et al., 2000, In: Breckinridge, J.B., Jakobsen, P. (eds.) *UV, Optical, and IR Space Telescopes and Instruments*, vol. 4013 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 453–472, doi:10.1117/12.394029, ADS Link
- [742] **[RTN-056]**, Giraldo Murillo, L.M., Calderon, J., Plazas Malagón, A.A., Lage, C.S., 2025, *Study of the Photon Transfer Curve in the CCD detectors of the Vera C. Rubin Observatory*, Technical Note RTN-056, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-056.lsst.io/>, doi:10.71929/rubin/2575156
- [743] **[SITCOMTN-097]**, Giro, E., 2023, *technote*, Commissioning Technical Note SITCOMTN-097, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-097.lsst.io/>
- [744] **[Document-37650]**, Gizis, J., Stars, Milky Way & Local Volume Science Collaboration, 2021, *LSST Long-Haul Networks (LHN) End-to-end Test Plan*, Informal Construction Document Document-37650, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-37650>
- [745] **[DMTN-127]**, Glasgow, J., Korrapati, H., 2019, *Survey of Tools for LSST Client Data Distribution*, Data Management Technical Note DMTN-127, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-127.lsst.io/>
- [746] Globus, Globus Transfer API Documentation, URL <https://docs.globus.org/api/transfer/>
- [747] Goldina, T., Roby, W., Wu, X., Ly, L., 2015, In: Taylor, A.R., Rosolowsky, E. (eds.) *Astronomical Data Analysis Software and Systems XXIV (ADASS XXIV)*, vol. 495 of Astronomical Society of the Pacific Conference Series, 137, ADS Link
- [748] Gomez, A.E., Grenier, S., Udry, S., et al., 1997, In: Battrick, B. (ed.) *Hipparcos - Venice 1997*, vol. 402 of ESA Special Publication, 621–624, ADS Link

- [749] **[SITCOMTN-155]**, Gomez Jimenez, M., 2026, *Eyepiece Observations with the Auxiliary Telescope*, Commissioning Technical Note SITCOMTN-155, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-155.lsst.io/>
- [750] **[ITTN-028]**, Gonzalez, I., Tapia, D., 2020, *IT User Support - Remote Work*, Information Technology Technical Note ITTN-028, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-028.lsst.io/>
- [751] **[ITTN-014]**, Gonzalez, I., Reinking, H., Silva, C., 2023, *Computing Infrastructure*, Information Technology Technical Note ITTN-014, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-014.lsst.io/>
- [752] Gonzalez-Nunez, J., 2015, In: *Science Operations 2015: Science Data Management*, 8, doi:10.5281/zenodo.34569, ADS Link
- [753] Gonzalez-Perez, V., Lacey, C.G., Baugh, C.M., et al., 2014, *MNRAS*, 439, 264 (arXiv:1309.7057), doi:10.1093/mnras/stt2410, ADS Link
- [754] **[ITTN-035]**, Goodenow, I., 2021, *Move from Jira On-Premise to Atlassian Cloud*, Information Technology Technical Note ITTN-035, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-035.lsst.io/>
- [755] **[ITTN-051]**, Goodenow, I., 2021, *Moving Jira Software On-Premise service to Atlassian Jira Cloud*, Information Technology Technical Note ITTN-051, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-051.lsst.io/>
- [756] **[LPM-101]**, Goodenow, I., McKercher, R., 2013, *Tucson Site Disaster Recovery Plan*, Project Controlled Document LPM-101, NSF-DOE Vera C. Rubin Observatory, URL <https://lsst.org/lpm-101>
- [757] Górski, K.M., Hivon, E., Banday, A.J., et al., 2005, *ApJ*, 622, 759 (arXiv:astro-ph/0409513), doi:10.1086/427976, ADS Link
- [758] Górski, K.M., Hivon, E., Banday, A.J., et al., 2005, *ApJ*, 622, 759 (arXiv:astro-ph/0409513), doi:10.1086/427976, ADS Link
- [759] **[SITCOMTN-137]**, Gorsuch, M.R., 2024, *Getting Started with Cell-Based Coadds*, Commissioning Technical Note SITCOMTN-137, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-137.lsst.io/>
- [760] **[SITCOMTN-162]**, Gorsuch, M.R., Kannawadi, A., Adari, P., et al., 2025, *Testing the implementation of Metadetection and Cell-Based Coadds on Abell 360 LSSTComCam data*,

Commissioning Technical Note SITCOMTN-162, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-162.lsst.io/>, doi:10.71929/rubin/3000578

- [761] Gosling, J., Joy, B., Steele, G., 2000, *The Java Language Specification*, Addison-Wesley, 2nd edn.
- [762] Gould, A., 2013, arXiv e-prints, arXiv:1304.3455 (arXiv:1304.3455), doi:10.48550/arXiv.1304.3455, ADS Link
- [763] **[DMTN-059]**, Gower, M., 2017, *Batch Processing Facade Prototype 0.1*, Data Management Technical Note DMTN-059, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-059.lsst.io/>
- [764] **[DMTN-122]**, Gower, M., Lim, K.T., 2019, *Data Backbone Design*, Data Management Technical Note DMTN-122, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-122.lsst.io/>
- [765] **[DMTN-123]**, Gower, M., Lim, K.T., 2019, *Batch Production Services Design*, Data Management Technical Note DMTN-123, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-123.lsst.io/>
- [766] **[LDM-635]**, Gower, M., Butler, M., Lim, K.T., 2019, *Data Management Data Backbone Services Requirements*, Data Management Controlled Document LDM-635, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-635.lsst.io/>
- [767] **[DMTN-244]**, Gower, M., Kowalik, M., Lust, N., Bosch, J., Jenness, T., 2022, *Adding Workflow Management Flexibility to LSST Pipelines Execution*, Data Management Technical Note DMTN-244, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-244.lsst.io/>
- [768] GPD, URL <http://www.rssd.esa.int/Gaia/paramdb>, Gaia Parameter Database
- [769] GPFS, IBM Spectrum Scale, URL <https://www.ibm.com/us-en/marketplace/scale-out-file-and-object-storage>
- [770] Graham, A.W., Driver, S.P., 2005, PASA, 22, 118 (arXiv:astro-ph/0503176), doi:10.1071/AS05001, ADS Link
- [771] **[DMTN-231]**, Graham, M., 2023, *Detection Efficiencies for diaSources.*, Data Management Technical Note DMTN-231, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-231.lsst.io/>

- [772] Graham, M., Morris, D., Rixon, G., 2009, VOSpace specification Version 1.15, IVOA Recommendation 07 October 2009, doi:10.5479/ADS/bib/2009ivoa.specQ1007G, ADS Link
- [773] Graham, M., Morris, D., Rixon, G., et al., 2013, VOSpace specification Version 2.0, IVOA Recommendation 29 March 2013 (arXiv:1509.06049), doi:10.5479/ADS/bib/2013ivoa.spec.0329G, ADS Link
- [774] Graham, M., Plante, R., Tody, D., Fitzpatrick, M., 2014, PyVO: Python access to the Virtual Observatory, Astrophysics Source Code Library, record ascl:1402.004, (ascl:1402.004), ADS Link
- [775] **[RTN-002]**, Graham, M., Plazas Malagón, A.A., Carlin, J., et al., 2025, *Community Science Use Cases*, Technical Note RTN-002, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-002.lsst.io/>
- [776] Graham, M.J., Djorgovski, S.G., Donalek, C., et al., 2012, In: Peck, A.B., Seaman, R.L., Comeron, F. (eds.) *Observatory Operations: Strategies, Processes, and Systems IV*, vol. 8448 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 84480P (arXiv:1206.4035), doi:10.1117/12.926577, ADS Link
- [777] **[DMTN-151]**, Graham, M.L., 2021, *Host Galaxy Association for DIAObjects*, Data Management Technical Note DMTN-151, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-151.lsst.io/>
- [778] **[RTN-097]**, Graham, M.L., 2026, *Guidelines for User Support with the Rubin Community Forum*, Technical Note RTN-097, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-097.lsst.io/>
- [779] **[DMTN-107]**, Graham, M.L., Bellm, E.C., Slater, C.T., Guy, L.P., Rubin Observatory Data Management System Science Team, 2020, *Options for Alert Production in LSST Operations Year 1*, Data Management Technical Note DMTN-107, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-107.lsst.io/>, doi:10.71929/rubin/2997867
- [780] **[DMTN-155]**, Graham, M.L., Guy, L.P., Swinbank, J., The DM System Science Team, 2020, *Interim Model for Community Support*, Data Management Technical Note DMTN-155, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-155.lsst.io/>
- [781] **[DMTN-049]**, Graham, M.L., Bosch, J., Guy, L.P., The DM System Science Team., 2022, *A Roadmap to Photometric Redshifts for the LSST Object Catalog*, Data Management Technical Note DMTN-049, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-049.lsst.io/>

- [782] **[DMTN-248]**, Graham, M.L., Guy, L.P., Bellm, E.C., The Data Management System Science Team, 2023, *Options for Alert Packets*, Data Management Technical Note DMTN-248, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-248.lsst.io/>
- [783] **[DMTN-065]**, Graham, M.L., AlSayyad, Y., Bechtol, K., et al., 2024, *Data Management for LSST Special Programs*, Data Management Technical Note DMTN-065, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-065.lsst.io/>, doi:10.71929/rubin/2997573
- [784] **[DMTN-102]**, Graham, M.L., Bellm, E.C., Guy, L.P., et al., 2024, *LSST Alerts: Key Numbers*, Data Management Technical Note DMTN-102, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-102.lsst.io/>, doi:10.71929/rubin/2997858
- [785] **[RTN-006]**, Graham, M.L., Adair, C.L., Annis, J., et al., 2025, *Model for Community Science*, Technical Note RTN-006, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-006.lsst.io/>
- [786] **[RTN-090]**, Graham, M.L., Lau, R.M., Guy, L.P., Bellm, E.C., 2025, *Roadmap for Community Alert Filters with the ANTARES Broker*, Technical Note RTN-090, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-090.lsst.io/>
- [787] **[RTN-045]**, Graham, M.L., Carlin, J.L., Adair, C.L., et al., 2026, *Guidelines for User Tutorials*, Technical Note RTN-045, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-045.lsst.io/>, doi:10.71929/rubin/2584020
- [788] **[RTN-118]**, Graham, M.L., Jeltema, T., Carlin, J.L., et al., 2026, *Guidelines for Rubin Liaisons to the Science Collaborations*, Technical Note RTN-118, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-118.lsst.io/>
- [789] Gray, B., 2025, *find_orb: Orbit determination from observations*, URL https://github.com/Bill-Gray/find_orb
- [790] Gray, J., 2006, *The Zones Algorithm for Finding Points-Near-a-Point or Cross-Matching Spatial Datasets*, Tech. Rep. MSR-TR-2006-52, Microsoft, URL <https://www.microsoft.com/en-us/research/publication/the-zones-algorithm-for-finding-points-near-a-point-or-cross-matching-spatial-datasets/>
- [791] Gray, J., Chong, W., Barclay, T., Szalay, A., vandenBerg, J., 2002, arXiv e-prints, cs/0208011 (arXiv:cs/0208011), doi:10.48550/arXiv.cs/0208011, ADS Link
- [792] Gray, J., Szalay, A.S., Thakar, A., et al., 2003, *Distributed Data and Structures 4: Records of the 4th International Meeting*, W. Litwin, G. Levy (eds), Paris France March 2002

- [793] Greenbaum, A., 1997, *Iterative Methods for Solving Linear Systems*, SIAM
- [794] Gregory, P.C., 2010, *Bayesian Logical Data Analysis for the Physical Sciences*, Cambridge University Press, 1 edn.
- [795] Greisen, E.W., Calabretta, M.R., 2002, *A&A*, 395, 1061 (arXiv:astro-ph/0207407), doi:10.1051/0004-6361:20021326, ADS Link
- [796] Gressler, W., DeVries, J., Hileman, E., et al., 2014, In: Stepp, L.M., Gilmozzi, R., Hall, H.J. (eds.) *Ground-based and Airborne Telescopes V*, vol. 9145 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 91451A, doi:10.1117/12.2056711, ADS Link
- [797] **[LTS-146]**, Gressler, W., Neill, D., Sebag, J., 2018, *M2 Cell Assembly Specifications Document*, Telescope & Site Controlled Document LTS-146, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LTS-146>
- [798] GRIDFTP, 2005, Universal data transfer for the grid, <http://www-fp.globus.org/datagrid/deliverables/c2wpdraft3.pdf>, URL <http://www-fp.globus.org/datagrid/deliverables/C2WPdraft3.pdf>
- [799] Groom, D.E., Eberhard, P.H., Holland, S.E., et al., 2000, In: Amico, P., Beletic, J.W. (eds.) *Astrophysics and Space Science Library*, vol. 252 of Astrophysics and Space Science Library, 201, doi:10.1007/978-94-011-4361-5_21, ADS Link
- [800] Grossman, R., Gu, Y., Hong, X., et al., 2004, *Future Generation Computer Systems*, 21, 501, doi:10.1016/j.future.2004.10.007
- [801] **[DMTN-147]**, Gruendl, R., 2020, *LDF Bulk Download Services*, Data Management Technical Note DMTN-147, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-147.lsst.io/>
- [802] **[DMTR-231]**, Gruendl, R., 2020, *LDM-503-11a: ComCam OPS Readiness Test Plan and Report*, Data Management Test Report DMTR-231, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-231.lsst.io/>
- [803] **[DMTN-159]**, Gruendl, R., O'Mullane, W., Blum, R., MacArthur, L., 2020, *Report on Operations Rehearsal #2*, Data Management Technical Note DMTN-159, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-159.lsst.io/>
- [804] **[DMTN-068]**, Gruendl, R.A., 2018, *Lossy Compression WG Report*, Data Management Technical Note DMTN-068, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-068.lsst.io/>

- [805] Grun, E., Zook, H.A., Fechtig, H., Giese, R.H., 1985, *Icarus*, 62, 244, doi:10.1016/0019-1035(85)90121-6, ADS Link
- [806] Guerrier, A., , *Software Design Document for Wavelength Calibration*, Tech. rep., ESA, GAIA-C6-TN-OPM-AG-003-1
- [807] Guerrier, A., , *Software Design Document for Apply Calibration*, Tech. rep., ESA, GAIA-C6-SP-OPM-AG-004-1
- [808] Gunn, A.G., Hall, J.C., Lockwood, G.W., Doyle, J.G., 1996, *A&A*, 305, 146, ADS Link
- [809] **[DMTN-146]**, Guy, L., 2020, *Virtual Rubin Algorithms Workshop.*, Data Management Technical Note DMTN-146, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-146.lsst.io/>
- [810] **[DMTN-152]**, Guy, L., 2020, *Rubin Algorithms Workshop - Scientific Summary*, Data Management Technical Note DMTN-152, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-152.lsst.io/>
- [811] **[RTN-007]**, Guy, L., 2020, *Charge to the Rubin Operations Survey Evaluation Working Group*, Technical Note RTN-007, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-007.lsst.io/>
- [812] **[SITCOMTN-008]**, Guy, L., 2020, *Charge to the Integration Planning Group*, Commissioning Technical Note SITCOMTN-008, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-008.lsst.io/>
- [813] **[SITCOMTN-020]**, Guy, L., 2021, *SITCOM Milestone Summary*, Commissioning Technical Note SITCOMTN-020, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-020.lsst.io/>
- [814] **[DMTR-361]**, Guy, L., 2022, *LW-P96 LDM-503-14 Test Plan and Report*, Data Management Test Report DMTR-361, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-361.lsst.io/>
- [815] **[RTN-047]**, Guy, L., 2023, *System Performance Management Plan*, Technical Note RTN-047, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-047.lsst.io/>
- [816] **[SITCOMTN-087]**, Guy, L., 2023, *Calibration System Milestone Summary*, Commissioning Technical Note SITCOMTN-087, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-087.lsst.io/>

- [817] **[RTN-072]**, Guy, L., 2024, *Rubin Operations Change Control Process*, Technical Note RTN-072, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-072.lsst.io/>
- [818] **[RTN-075]**, Guy, L., 2024, *Charge to the Rubin Telescope and Auxiliary Instrumentation Calibration Acceptance Board*, Technical Note RTN-075, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-075.lsst.io/>
- [819] **[RTN-038]**, Guy, L., The DM System Science Team, 2024, *Rubin Science Performance Metrics*, Technical Note RTN-038, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-038.lsst.io/>
- [820] **[RTN-009]**, Guy, L., Roberts, A., Ivezić, Ž., 2020, *Rubin Observatory Initial Key Performance Metrics*, Technical Note RTN-009, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-009.lsst.io/>
- [821] **[LSE-439]**, Guy, L., Bechtol, K., Carlin, J., et al., 2021, *Rubin Observatory LSST Science Validation Plan*, Systems Engineering Controlled Document LSE-439, NSF-DOE Vera C. Rubin Observatory, URL <https://lse-439.lsst.io/>
- [822] **[LDM-639]**, Guy, L., Wood-Vasey, W., Bellm, E., et al., 2022, *LSST Data Management Acceptance Test Specification*, Data Management Controlled Document LDM-639, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-639.lsst.io/>
- [823] **[LDM-652]**, Guy, L.P., 2019, *LSST Science Platform Final Design Review*, Data Management Controlled Document LDM-652, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-652.lsst.io/>
- [824] **[PSTN-024]**, Guy, L.P., 2019, *LSST Data Management System Verification and Validation*, Project Science Technical Note PSTN-024, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-024.lsst.io/>
- [825] **[DMTN-211]**, Guy, L.P., 2022, *Faro: A framework for measuring the scientific performance of petascale Rubin Observatory data products*, Data Management Technical Note DMTN-211, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-211.lsst.io/>
- [826] **[RTN-071]**, Guy, L.P., 2024, *Proposal for implementing a Rubin GPT service*, Technical Note RTN-071, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-071.lsst.io/>
- [827] **[RTN-106]**, Guy, L.P., Graham, M.L., Bellm, E.C., Street, R.A., Miller, B., 2025, *First alerts end-to-end demonstration*, Technical Note RTN-106, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-106.lsst.io/>

- [828] **[RTN-011]**, Guy, L.P., Bechtol, K., Bellm, E., et al., 2026, *Rubin Observatory Plans for an Early Science Program*, Technical Note RTN-011, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-011.lsst.io/>, doi:10.71929/rubin/2584021
- [829] Guzman, J.C., Chiozzi, G., Bridger, A., Ibsen, J., 2014, In: Chiozzi, G., Radziwill, N.M. (eds.) *Software and Cyberinfrastructure for Astronomy III*, vol. 9152 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 91521P, doi:10.1117/12.2055921, ADS Link
- [830] Guzman, J.C., Chiozzi, G., Bridger, A., Ibsen, J., 2014, In: Chiozzi, G., Radziwill, N.M. (eds.) *Software and Cyberinfrastructure for Astronomy III*, vol. 9152 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 91521P, doi:10.1117/12.2055921, ADS Link
- [831] Hamilton, W.R., 1843, In: *Proceedings of the Royal Irish Academy*, vol. 2, 424–434, URL <http://www.maths.tcd.ie/pub/HistMath/People/Hamilton/Quatern1/Quatern1.html>
- [832] Hamilton, W.R., 1844, In: *Proceedings of the Royal Irish Academy*, vol. 3, 1–16, URL <http://www.maths.tcd.ie/pub/HistMath/People/Hamilton/OnQuat/OnQuat.pdf>
- [833] Hamilton, W.R., 1847, In: *Proceedings of the Royal Irish Academy*, vol. 3, 1–16, URL <http://www.maths.tcd.ie/pub/HistMath/People/Hamilton/Quatern2/Quatern2.html>
- [834] Handy, C., 1993, *Understanding organizations*, Penguin Books, London, England New York, N.Y., USA
- [835] Hankins, T.L., 1980, *Sir William Rowan Hamilton*, The Johns Hopkins University Press
- [836] Hanushevsky, A., Trunov, A., Cottrell, L., 2001, In: *In Proc. of the 2001 Int. Conf. on Computing in High Energy and Nuclear Physics (CHEP 2001)*, Beijing, URL <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.132.2288&rep=rep1>
- [837] Harrison, D.L., 2011, *Experimental Astronomy*, 31, 157 (arXiv:1107.0210), doi:10.1007/s10686-011-9240-7, ADS Link
- [838] Harrison, P., Rixon, G., 2010, *Universal Worker Service Pattern Version 1.0*, IVOA Recommendation 10 October 2010 (arXiv:1110.0510), doi:10.5479/ADS/bib/2010ivoa.spec.1010H, ADS Link
- [839] **[DMTN-063]**, Hasan, I., Gee, P., Tyson, T., 2017, *Testing the LSST DM Stack on Deep Lens Survey Data*, Data Management Technical Note DMTN-063, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-063.lsst.io/>

- [840] **[RTN-087]**, Hascall, D., 2024, *OpenMAINT-Jira Workflow and API Details v1.0*, Technical Note RTN-087, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-087.lsst.io/>
- [841] **[LSE-59]**, Hascall, P., 2022, *Camera Subsystem Requirements*, Systems Engineering Controlled Document LSE-59, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-59>
- [842] Hassan, A., Fluke, C.J., 2011, *PASA*, 28, 150 (arXiv:1102.5123), doi:10.1071/AS10031, ADS Link
- [843] Haywood, M., Robin, A.C., Creze, M., 1997, *A&A*, 320, 428, ADS Link
- [844] Hechler, M., 2004,
ESOC, private communication
- [845] Hechler, M., 2006, *GAIA Consolidated Report on Mission Analysis (CREMA)*, Tech. rep., ESA, European Space Operations Centre, GAIA-ESC-RP-0001, Issue 2.0
- [846] Hees, A., Hestroffer, D., Le Poncin-Lafitte, C., David, P., 2015, In: Martins, F., Boissier, S., Buat, V., Cambrésy, L., Petit, P. (eds.) SF2A-2015: Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics, 125–131 (arXiv:1509.06868), doi:10.48550/arXiv.1509.06868, ADS Link
- [847] **[SITCOMTN-027]**, (he/him), E.P., 2022, *Donut analysis for wavefront sensor verification*, Commissioning Technical Note SITCOMTN-027, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-027.lsst.io/>
- [848] **[SITCOMTN-042]**, (he/him), E.P., 2022, *Image quality contribution from uncorrected quasi-static wavefront errors*, Commissioning Technical Note SITCOMTN-042, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-042.lsst.io/>
- [849] Heinze, A., Ettl, S., Juric, M., et al., 2022, In: AAS/Division for Planetary Sciences Meeting Abstracts, vol. 54 of AAS/Division for Planetary Sciences Meeting Abstracts, 504.04, ADS Link
- [850] Heinze, A., Juric, M., Kurlander, J., 2023, *heliolinx: Open source solar system discovery software*, URL <https://github.com/heliolinx/heliolinx>
- [851] Helmi, A., de Zeeuw, P.T., 2000, *MNRAS*, 319, 657 (arXiv:astro-ph/0007166), doi:10.1046/j.1365-8711.2000.03895.x, ADS Link

- [852] **[RTN-101]**, Hernandez, F., Le Boulc'h, Q., 2025, *Preparations for a distributed data release processing campaign*, Technical Note RTN-101, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-101.lsst.io/>
- [853] **[DMTN-053]**, Hernandez, F., Boutigny, D., Tortay, L., 2017, *Observations on I/O activity induced by ingestImages.py and processCcd.py*, Data Management Technical Note DMTN-053, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-053.lsst.io/>
- [854] **[RTN-029]**, Hernandez, F., Le Boulc'h, Q., Bosch, J., et al., 2022, *Procedure for creating a butler repository at FrDF for Data Preview 0.2*, Technical Note RTN-029, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-029.lsst.io/>
- [855] **[DMTN-306]**, Hernandez, F., Beckett, M.G., Hanushevsky, A., et al., 2025, *Data Movement Model for the Vera C. Rubin Observatory*, Data Management Technical Note DMTN-306, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-306.lsst.io/>
- [856] **[SITCOMTN-120]**, Hernández, J., 2024, *M2 Tests Index*, Commissioning Technical Note SITCOMTN-120, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-120.lsst.io/>
- [857] Hernandez, J., Hutton, A., 2015, In: Taylor, A.R., Rosolowsky, E. (eds.) *Astronomical Data Analysis Software and Systems XXIV (ADASS XXIV)*, vol. 495 of *Astronomical Society of the Pacific Conference Series*, 47, ADS Link
- [858] **[TSTN-008]**, Heyer, A., 2020, *TMA User Guides*, Telescope and Site Technical Note TSTN-008, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-008.lsst.io/>
- [859] **[TSTN-009]**, Heyer, A., 2020, *Coating Chamber*, Telescope and Site Technical Note TSTN-009, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-009.lsst.io/>
- [860] **[TSTN-011]**, Heyer, A., 2020, *Technote for Andy to repurpose*, Telescope and Site Technical Note TSTN-011, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-011.lsst.io/>
- [861] **[TSTN-005]**, Heyer, A., Coughlin, E., 2020, *TSSW Documentation Guide*, Telescope and Site Technical Note TSTN-005, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-005.lsst.io/>
- [862] Hildebrandt, H., Arnouts, S., Capak, P., et al., 2010, *A&A*, 523, A31 (arXiv:1008.0658), doi:10.1051/0004-6361/201014885, ADS Link
- [863] Hirata, C., Seljak, U., 2003, *MNRAS*, 343, 459 (arXiv:astro-ph/0301054), doi:10.1046/j.1365-8711.2003.06683.x, ADS Link

- [864] Hoblitt, J., 2015, Puppet vs jenkins: A tale of types and providers, URL <https://puppetlabs.com/presentations/puppet-vs-jenkins-tale-types-and-providers>, Talk presented at PuppetConf 2015, Portland
- [865] **[SQR-002]**, Hoblitt, J., 2015, *Binary Science Pipeline Software Distribution*, SQuaRE Technical Note SQR-002, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-002.lsst.io/>
- [866] **[SQR-028]**, Hoblitt, J., 2018, *T&S Jenkins*, SQuaRE Technical Note SQR-028, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-028.lsst.io/>
- [867] **[ITTN-003]**, Hoblitt, J., 2019, *[Proposed] Improved Tucson Lab Network Architecture*, Information Technology Technical Note ITTN-003, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-003.lsst.io/>
- [868] **[ITTN-004]**, Hoblitt, J., 2019, *[Proposed] LSST On-Prem Domain Name Service (DNS)*, Information Technology Technical Note ITTN-004, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-004.lsst.io/>
- [869] **[ITTN-005]**, Hoblitt, J., 2019, *Puppet Standards and Practices*, Information Technology Technical Note ITTN-005, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-005.lsst.io/>
- [870] **[ITTN-002]**, Hoblitt, J., 2020, *LSST On-Prem Deployment Platform*, Information Technology Technical Note ITTN-002, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-002.lsst.io/>
- [871] **[SQR-030]**, Hoblitt, J., 2020, *Jenkins Administration*, SQuaRE Technical Note SQR-030, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-030.lsst.io/>
- [872] **[ITTN-062]**, Hoblitt, J., 2023, *Foreman Playbook*, Information Technology Technical Note ITTN-062, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-062.lsst.io/>
- [873] **[ITTN-066]**, Hoblitt, J., 2023, *Kubernetes Policies*, Information Technology Technical Note ITTN-066, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-066.lsst.io/>
- [874] **[ITTN-073]**, Hoblitt, J., 2024, *Kubernetes Secrets Management*, Information Technology Technical Note ITTN-073, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-073.lsst.io/>
- [875] **[ITTN-019]**, Hoblitt, J., Frez, R., Kollross, M., 2020, *LHN Postmortem #1*, Information Technology Technical Note ITTN-019, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-019.lsst.io/>

- [876] **[ITTN-011]**, Hoblitt, J., Thebo, A., Reinking, H., 2023, *Bootstrapping the Deployment Platform*, Information Technology Technical Note ITTN-011, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-011.lsst.io/>
- [877] Hoeg, E., 1994, In: Angrilla, F., Bernacca, P.L., Bianchini, G. (eds.) *Ideas for Space Research After the Year 2000*, 247, ADS Link
- [878] Hoff, T., 2008, *Skype Plans For PostgreSQL To Scale To 1 Billion Users*, URL <http://highscalability.com/skype-plans-postgresql-scale-1-billion-users>
- [879] Høg, E., Bernacca, P.L., Emiliani, L., 1997, In: Perryman, M., Bernacca, P. (eds.) *Proc. of Hipparcos Venice 97*, xxvii-xxxv
- [880] Høg, E., Fabricius, C., Makarov, V.V., et al., 2000, *A&A*, 355, L27, ADS Link
- [881] Hogg, D.W., Lang, D., 2008, In: Bailer-Jones, C.A.L. (ed.) *Classification and Discovery in Large Astronomical Surveys*, vol. 1082 of American Institute of Physics Conference Series, 331–338 (arXiv:0810.3851), doi:10.1063/1.3059072, ADS Link
- [882] Hogg, D.W., Lang, D., 2010, In: Turon, C., Meynadier, F., Arenou, F. (eds.) *EAS Publications Series*, vol. 45 of EAS Publications Series, 351–358 (arXiv:1008.0738), doi:10.1051/eas/1045059, ADS Link
- [883] Hohenkerk, C., Sinclair, A., 1985, *NAO Technical Note*, 63, URL <http://astro.ukho.gov.uk/data/tn/naotn63.pdf>
- [884] Holl, B., Lindegren, L., 2012, *A&A*, 543, A14, doi:10.1051/0004-6361/201218807, ADS Link
- [885] Holl, B., Hobbs, D., Lindegren, L., 2010, In: Klioner, S.A., Seidelmann, P.K., Soffel, M.H. (eds.) *Relativity in Fundamental Astronomy: Dynamics, Reference Frames, and Data Analysis*, vol. 261 of IAU Symposium, 320–324, doi:10.1017/S1743921309990573, ADS Link
- [886] Holl, B., Lindegren, L., Hobbs, D., 2012, *A&A*, 543, A15, doi:10.1051/0004-6361/201218808, ADS Link
- [887] Holland, S.E., Groom, D.E., Palaio, N.P., Stover, R.J., Wei, M., 2003, *IEEE transactions on electron devices*, 50, 225
- [888] Holman, M.J., Payne, M.J., Blankley, P., Janssen, R., Kuindersma, S., 2018, *AJ*, 156, 135, doi:10.3847/1538-3881/aad69a, ADS Link

- [889] Hough, P.V.C., 1962, Method and means for recognizing complex patterns, URL <https://www.google.com/patents/US3069654>,
US Patent 3,069,654
- [890] Howard, J., Reil, K., Claver, C., et al., 2018, In: Marshall, H.K., Spyromilio, J. (eds.) Ground-based and Airborne Telescopes VII, vol. 10700 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 107003D, doi:10.1117/12.2312684, ADS Link
- [891] HPSS, HPSS – High Performance Storage Systems, URL <http://hpss-collaboration.org/>
- [892] HTCondor, HTCondor, URL <https://research.cs.wisc.edu/htcondor/index.html>
- [893] Huckle, H., 2007, *Continuum Normalisation*, Tech. rep., ESA,
GAIA-C6-SP-MSSL-HEH-001-D
- [894] Huff, E., Mandelbaum, R., 2017, arXiv e-prints, arXiv:1702.02600 (arXiv:1702.02600), doi:10.48550/arXiv.1702.02600, ADS Link
- [895] **[PSTN-015]**, Huffer, M.E., 2019, *LSST Camera Control System and DAQ*, Project Science Technical Note PSTN-015, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-015.lsst.io/>
- [896] IAU, 2001, Information Bulletin, 88,
(errata in IAU Information Bulletin, 89)
- [897] Idreos, S., Groffen, F., Nes, N., et al., 2012, IEEE Data Eng. Bull., 35, 40, URL <http://sites.computer.org/debull/A12mar/monetdb.pdf>
- [898] Ilbert, O., Arnouts, S., McCracken, H.J., et al., 2006, A&A, 457, 841
(arXiv:astro-ph/0603217), doi:10.1051/0004-6361:20065138, ADS Link
- [899] Illingworth, G., Magee, D., Bouwens, R., et al., 2016, arXiv e-prints, arXiv:1606.00841
(arXiv:1606.00841), doi:10.48550/arXiv.1606.00841, ADS Link
- [900] **[LTS-487]**, Ingraham, P., 2017, *Auxiliary Telescope Spectrograph Statement of Work (SOW)*, Telescope & Site Controlled Document LTS-487, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LTS-487>
- [901] **[LTS-488]**, Ingraham, P., 2017, *Auxiliary Telescope Spectrograph Specifications Document*, Telescope & Site Controlled Document LTS-488, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LTS-488>

- [902] **[LSE-379]**, Ingraham, P., 2018, *Auxiliary Telescope Concept of Operations*, Systems Engineering Controlled Document LSE-379, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-379>
- [903] **[LTS-523]**, Ingraham, P., 2019, *Calibration Screen Design and Fabrication Specifications*, Telescope & Site Controlled Document LTS-523, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LTS-523>
- [904] **[PSTN-027]**, Ingraham, P., 2020, *Performance of the LSST Calibration Systems*, Project Science Technical Note PSTN-027, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-027.lsst.io/>
- [905] **[PSTN-028]**, Ingraham, P., 2020, *Characterization of Atmospheric Properties with the Rubin Auxiliary Telescope*, Project Science Technical Note PSTN-028, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-028.lsst.io/>
- [906] **[SITCOMTN-013]**, Ingraham, P., 2021, *First-look Analysis and Feedback Functionality Breakout Group Charge*, Commissioning Technical Note SITCOMTN-013, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-013.lsst.io/>
- [907] **[SITCOMTN-015]**, Ingraham, P., 2021, *Diagnosing AuxTel Image Motion and WFE non-repeatability*, Commissioning Technical Note SITCOMTN-015, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-015.lsst.io/>
- [908] **[SITCOMTN-029]**, Ingraham, P., 2022, *LATISS Filter Change Procedure*, Commissioning Technical Note SITCOMTN-029, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-029.lsst.io/>
- [909] **[SITCOMTN-030]**, Ingraham, P., 2022, *First-look Analysis and Feedback Functionality Breakout Group Charge #2*, Commissioning Technical Note SITCOMTN-030, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-030.lsst.io/>
- [910] **[SITCOMTN-048]**, Ingraham, P., 2022, *SIT-Com Documentation Workflow*, Commissioning Technical Note SITCOMTN-048, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-048.lsst.io/>
- [911] **[TSTN-027]**, Ingraham, P., 2022, *Seismic Event Recovery for the Auxiliary Telescope*, Telescope and Site Technical Note TSTN-027, Vera C. Rubin Observatory, URL <https://tstn-027.lsst.io/>

- [912] **[TSTN-015]**, Ingraham, P., Ribeiro, T., 2020, *Using CWFS during operations and for collimation of the Auxiliary Telescope*, Telescope and Site Technical Note TSTN-015, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-015.lsst.io/>
- [913] **[TSTN-024]**, Ingraham, P., Ribeiro, T., 2021, *Concept of Control System Operations*, Telescope and Site Technical Note TSTN-024, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-024.lsst.io/>
- [914] **[SITCOMTN-024]**, Ingraham, P., Stalder, B., 2021, *Summit Power Reliability and Risk Evaluation Task Force Charge*, Commissioning Technical Note SITCOMTN-024, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-024.lsst.io/>
- [915] Ingraham, P., Fagrelus, P., Stubbs, C.W., et al., 2022, In: Marshall, H.K., Spyromilio, J., Usuda, T. (eds.) *Ground-based and Airborne Telescopes IX*, vol. 12182 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 121820R, doi:10.1117/12.2630185, ADS Link
- [916] **[SITCOMTN-019]**, Ingraham, P., Quint, B., Dennihy, E., Shugart, A., Sotuela, I., 2022, *Observing Task Management Workflow Summary*, Commissioning Technical Note SITCOMTN-019, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-019.lsst.io/>
- [917] Intersystems, 2008, *Using Cache Globals*, URL <http://docs.intersystems.com/documentation/cache/20082/pdfs/GGBL.pdf>
- [918] **[DMTN-297]**, Irving, D.H., 2024, *Butler Databases for Community Science Users at the RSP*, Data Management Technical Note DMTN-297, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-297.lsst.io/>
- [919] **[DMTN-330]**, Irving, D.H., 2025, *Publication flow for Butler prompt data products*, Data Management Technical Note DMTN-330, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-330.lsst.io/>
- [920] **[DMTN-310]**, Irving, D.H., Speck, D., 2025, *Reducing Butler database contention in Prompt Processing*, Data Management Technical Note DMTN-310, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-310.lsst.io/>
- [921] Isard, M., Budiu, M., Yu, Y., Birrell, A., Fetterly, D., 2007, In: *Proceedings of the 2Nd ACM SIGOPS/EuroSys European Conference on Computer Systems 2007*, EuroSys '07, 59–72, ACM, New York, NY, USA, doi:10.1145/1272996.1273005

- [922] Ivanova, M., Nes, N., Goncalves, R., Kersten, M., 2007, In: 19th International Conference on Scientific and Statistical Database Management (SSDBM 2007), 13, doi:10.1109/SSDBM.2007.19
- [923] **[LSE-40]**, Željko Ivezić, Jones, R.L., Lupton, R.H., 2010, *Photon Rates and SNR Calculations*, Systems Engineering Controlled Document LSE-40, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-40>
- [924] Ivezić, Z., 2016, The impact of photo-z on LSST science requirements, URL <https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWVpbnxwaXR0cGhvdG96d29ya3Nob3AyMDE2fGd40jMwZDZmNWewYjhhMmY3Zjk>, Presented at the LSST Photo-z Workshop, Pittsburgh, April 5, 2016
- [925] **[PSTN-049]**, Ivezić, Z., 2020, *Essential Performance Metrics*, Project Science Technical Note PSTN-049, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-049.lsst.io/>
- [926] **[Document-25351]**, Ivezić, Z., Krabbendam, V., 2022, *Leadership Roles, Responsibilities, Authorities and Accountabilities (R2A2s) for the Executive Committee of the Rubin Observatory Construction Project*, Informal Construction Document Document-25351, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-25351>
- [927] **[PSTN-001]**, Ivezić, Ž., LSST Project Science Team, 2018, *On the choice of LSST flux units*, Project Science Technical Note PSTN-001, NSF-DOE Vera C. Rubin Observatory, URL <https://PSTN-001.lsst.io>
- [928] **[DOCUMENT-27758]**, Ivezić, Ž., The LSST Project Science Team, 2018, *On the Choice of LSST Flux Units*, DOCUMENT-27758, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-001.lsst.io/>
- [929] **[LPM-17]**, Ivezić, Ž., The LSST Science Collaboration, 2018, *LSST Science Requirements Document*, Project Controlled Document LPM-17, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-17>
- [930] Ivezić, Ž., Smith, J.A., Miknaitis, G., et al., 2007, *AJ*, 134, 973 (arXiv:astro-ph/0703157), doi:10.1086/519976, ADS Link
- [931] Ivezić, Ž., Tyson, J.A., Jurić, M., et al., 2007, In: Valsecchi, G.B., Vokrouhlický, D., Milani, A. (eds.) *Near Earth Objects, our Celestial Neighbors: Opportunity and Risk*, vol. 236 of IAU Symposium, 353–362 (arXiv:astro-ph/0701506), doi:10.1017/S1743921307003420, ADS Link

- [932] Ivezić, Ž., Axelrod, T., Becker, A.C., et al., 2008, In: Bailer-Jones, C.A.L. (ed.) *Classification and Discovery in Large Astronomical Surveys*, vol. 1082 of American Institute of Physics Conference Series, 359–365, AIP (arXiv:0810.5155), doi:10.1063/1.3059076, ADS Link
- [933] Ivezić, Ž., Connolly, A.J., VanderPlas, J.T., Gray, A., 2014, *Statistics, Data Mining, and Machine Learning in Astronomy: A Practical Python Guide for the Analysis of Survey Data*, doi:10.1515/9781400848911, ADS Link
- [934] **[Document-28382]**, Ivezić, Ž., Jones, L., Ribeiro, T., LSST Project Scientist Team, LSST Science Advisory Committee, 2018, *Call for White Papers on LSST Cadence Optimization*, Informal Construction Document Document-28382, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-28382>
- [935] Ivezić, Ž., Kahn, S.M., Tyson, J.A., et al., 2019, *ApJ*, 873, 111 (arXiv:0805.2366), doi:10.3847/1538-4357/ab042c, ADS Link
- [936] Ivezić, Ž., Kahn, S.M., Tyson, J.A., et al., 2019, *ApJ*, 873, 111 (arXiv:0805.2366), doi:10.3847/1538-4357/ab042c, ADS Link
- [937] Ivezić, Z., et al., 2011, *Parametrization and classification of 20 billion LSST objects: Lessons from SDSS*, SLAC-PUB-14716, URL <http://www.osti.gov/scitech/biblio/1029150/>, Republished version of 2008AIPC.1082..359I, doi:10.1063/1.3059076
- [938] J.A. Zensus, P.N., P.J. Napier, 1995, *Very Long Baseline Interferometry and the VLBA*, Astronomical Society of the Pacific, ASP Conference Series vol. 82 edn.
- [939] Jacobson, I., Booch, G., Rumbaugh, J., 1999, *The Unified Software Development Process*, Addison-Wesley Professional, 1st edn.
- [940] **[Document-3604]**, Jacoby, S., 2022, *Press Release / Press Conference Procedure*, Informal Construction Document Document-3604, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-3604>
- [941] **[LSE-131]**, Jacoby, S., Emmons, B., Selvy, B., 2017, *Interface between Data Management and Education and Public Outreach*, Systems Engineering Controlled Document LSE-131, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-131>
- [942] Jagatheesan, A.S., Kantor, J., Plante, R., et al., 2010, In: Radziwill, N.M., Bridger, A. (eds.) *Software and Cyberinfrastructure for Astronomy*, vol. 7740 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 77401H, doi:10.1117/12.857812, ADS Link

- [943] **[DMTN-022]**, Jammes, F., 2016, *Tracks to optimize Qserv containers deployment and orchestration*, Data Management Technical Note DMTN-022, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-022.lsst.io/>
- [944] **[DMTN-032]**, Jammes, F., 2017, *Qserv Data Placement*, Data Management Technical Note DMTN-032, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-032.lsst.io/>
- [945] **[DMTN-166]**, Jammes, F., 2023, *Ingesting DC2 data inside Qserv at IN2P3*, Data Management Technical Note DMTN-166, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-166.lsst.io/>
- [946] Janesick, J.R., 2001, *Scientific charge-coupled devices*, ADS Link
- [947] Jarvis, M., Bernstein, G.M., Amon, A., et al., 2021, MNRAS, 501, 1282 (arXiv:2011.03409), doi:10.1093/mnras/staa3679, ADS Link
- [948] Jarvis, M., Meyers, J., Leget, P.F., Davis, C., 2021, Piff: PSFs In the Full FOV, Astrophysics Source Code Library, record ascl:2102.024 (ascl:2102.024), (ascl:2102.024), ADS Link
- [949] Jedicke, R., Magnier, E.A., Kaiser, N., Chambers, K.C., 2007, In: Valsecchi, G.B., Vokrouhlický, D., Milani, A. (eds.) *Near Earth Objects, our Celestial Neighbors: Opportunity and Risk*, vol. 236 of IAU Symposium, 341–352, doi:10.1017/S1743921307003419, ADS Link
- [950] Jee, M.J., Tyson, J.A., 2011, PASP, 123, 596 (arXiv:1011.1913), doi:10.1086/660137, ADS Link
- [951] **[DMTN-001]**, Jenness, T., 2015, *Porting the stack to OS X El Capitan*, Data Management Technical Note DMTN-001, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-001.lsst.io/>
- [952] Jenness, T., 2016, LSST Data Management Code Overview, URL <http://dx.doi.org/10.5281/zenodo.48434>,
Presented at LSST/Astropy Summit, March 2016, Seattle, doi:10.5281/zenodo.48434
- [953] Jenness, T., 2016, Investigating interoperability of the LSST Data Management software stack with Astropy, URL <http://dx.doi.org/10.5281/zenodo.48434>,
Talk at the SPIE Astronomical Telescopes and Instrumentation Conference, Edinburgh, UK, doi:10.5281/zenodo.48434
- [954] Jenness, T., 2016, In: Jenness, T., Robitaille, T., Tollerud, E., Mumford, S., Cruz, K. (eds.) *Python in Astronomy 2016*, 27, doi:10.5281/zenodo.48406, ADS Link

- [955] **[SQR-012]**, Jenness, T., 2016, *Migrating LSST tests to py.test*, SQuaRE Technical Note SQR-012, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-012.lsst.io/>
- [956] **[SQR-014]**, Jenness, T., 2016, *Porting the LSST DM Stack to Python 3*, SQuaRE Technical Note SQR-014, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-014.lsst.io/>
- [957] **[DMTN-000]**, Jenness, T., 2017, *The LSST Data Management Technical Note Series*, Data Management Technical Note DMTN-000, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-000.lsst.io/>
- [958] **[PSTN-044]**, Jenness, T., 2019, *Geobelt satellites and LSST*, Project Science Technical Note PSTN-044, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-044.lsst.io/>
- [959] **[DMTN-133]**, Jenness, T., 2020, *OCS driven data processing*, Data Management Technical Note DMTN-133, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-133.lsst.io/>
- [960] **[DMTN-176]**, Jenness, T., 2021, *A client/server Butler*, Data Management Technical Note DMTN-176, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-176.lsst.io/>
- [961] **[DMTN-229]**, Jenness, T., 2022, *The Vera C. Rubin Observatory Data Butler and Pipeline Execution System*, Data Management Technical Note DMTN-229, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-229.lsst.io/>
- [962] **[DMTN-177]**, Jenness, T., 2023, *Limiting Registry Access During Workflow Execution*, Data Management Technical Note DMTN-177, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-177.lsst.io/>
- [963] **[DMTN-203]**, Jenness, T., 2023, *Tracking Metrics in Butler*, Data Management Technical Note DMTN-203, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-203.lsst.io/>
- [964] **[DMTN-204]**, Jenness, T., 2023, *Data Annotations in Butler*, Data Management Technical Note DMTN-204, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-204.lsst.io/>
- [965] **[DMTN-206]**, Jenness, T., 2023, *Simplifying Pipeline Execution APIs*, Data Management Technical Note DMTN-206, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-206.lsst.io/>
- [966] **[DMTN-242]**, Jenness, T., 2023, *Butler Client/Server Revisited*, Data Management Technical Note DMTN-242, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-242.lsst.io/>
- [967] **[DMTN-288]**, Jenness, T., 2024, *Converting Rubin Observatory's Data Butler to a client/server architecture*, Data Management Technical Note DMTN-288, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-288.lsst.io/>

- [968] **[DMTN-295]**, Jenness, T., 2024, *The Rubin Build Engineering Team*, Data Management Technical Note DMTN-295, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-295.lsst.io/>
- [969] **[RDO-151]**, Jenness, T., 2025, *Projet Publication Policy*, Data Management Operations Controlled Document RDO-151, NSF-DOE Vera C. Rubin Observatory, URL <https://rdo-151.lsst.io/>
- [970] **[DMTN-302]**, Jenness, T., Dubois-Felsmann, G.P., 2025, *IVOA Identifier Usage at the Rubin Observatory*, Data Management Technical Note DMTN-302, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-302.lsst.io/>, doi:10.71929/rubin/2583848
- [971] **[DMTN-318]**, Jenness, T., Dubois-Felsmann, G.P., 2025, *DOI usage for LSST Data Releases*, Data Management Technical Note DMTN-318, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-318.lsst.io/>, doi:10.71929/rubin/2583847
- [972] **[DMTN-283]**, Jenness, T., Irving, D.H., 2024, *Butler Client/Server Implementation and Deployment Strategies*, Data Management Technical Note DMTN-283, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-283.lsst.io/>
- [973] **[CTN-004]**, Jenness, T., Johnson, A.S., 2026, *Rubin Observatory Raw Data File Format*, Camera Technical Note CTN-004, NSF-DOE Vera C. Rubin Observatory, URL <https://ctn-004.lsst.io/>, doi:10.71929/rubin/3011115
- [974] Jenness, T., LSST Data Management Team, 2016, In: American Astronomical Society Meeting Abstracts #227, vol. 227 of American Astronomical Society Meeting Abstracts, 348.15, doi:10.5281/zenodo.44634, ADS Link
- [975] Jenness, T., LSST Data Management Team, 2017, In: Lorente, N.P.F., Shortridge, K., Wayth, R. (eds.) *Astronomical Data Analysis Software and Systems XXV*, vol. 512 of Astronomical Society of the Pacific Conference Series, 297 (arXiv:1511.06790), doi:10.48550/arXiv.1511.06790, ADS Link
- [976] **[LDM-512]**, Jenness, T., O'Mullane, W., 2017, *Data Management Risk Assessment Process*, Data Management Controlled Document LDM-512, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-512>
- [977] **[Report-142]**, Jenness, T., Swinbank, J., Krughoff, S., Dubois-Felsmann, G., Ciardi, D., 2015, *Hot-Wiring the Transient Universe IV*, Construction Report Report-142, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Report-142>,

Report on the Hot-Wiring the Transient Universe IV conference held in Santa Barbara in May 2015.

- [978] Jenness, T., Bosch, J., Owen, R., et al., 2016, In: Chiozzi, G., Guzman, J.C. (eds.) Software and Cyberinfrastructure for Astronomy IV, vol. 9913 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 99130G, doi:10.1117/12.2231313, ADS Link
- [979] **[LDM-592]**, Jenness, T., Bosch, J., Gower, M., et al., 2018, *Data Access Use Cases*, Data Management Controlled Document LDM-592, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-592.lsst.io/>
- [980] Jenness, T., Economou, F., Findeisen, K., et al., 2018, In: Guzman, J.C., Ibsen, J. (eds.) Software and Cyberinfrastructure for Astronomy V, vol. 10707 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 1070709, doi:10.1117/12.2312157, ADS Link
- [981] Jenness, T., Bosch, J., Schellart, P., et al., 2019, In: Teuben, P.J., Pound, M.W., Thomas, B.A., Warner, E.M. (eds.) Astronomical Data Analysis Software and Systems XXVII, vol. 523 of Astronomical Society of the Pacific Conference Series, 653 (arXiv:1812.08085), doi:10.48550/arXiv.1812.08085, ADS Link
- [982] Jenness, T., Bosch, J., Schellart, P., et al., 2019, In: Teuben, P.J., Pound, M.W., Thomas, B.A., Warner, E.M. (eds.) Astronomical Data Analysis Software and Systems XXVII, vol. 523 of Astronomical Society of the Pacific Conference Series, 653 (arXiv:1812.08085), doi:10.48550/arXiv.1812.08085, ADS Link
- [983] Jenness, T., Bosch, J.F., Salnikov, A., et al., 2022, In: Software and Cyberinfrastructure for Astronomy VII, vol. 12189 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 1218911 (arXiv:2206.14941), doi:10.1117/12.2629569, ADS Link
- [984] Jenness, T., Voutsinas, S., Dubois-Felsmann, G.P., Salnikov, A., 2024, arXiv e-prints, arXiv:2501.00544 (arXiv:2501.00544), doi:10.48550/arXiv.2501.00544, ADS Link
- [985] **[DMTN-300]**, Jenness, T., Voutsinas, S., Dubois-Felsmann, G.P., Salnikov, A., 2024, *Implementing SIAv2 Over Rubin Observatory's Data Butler*, Data Management Technical Note DMTN-300, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-300.lsst.io/>
- [986] **[DMTN-326]**, Jenness, T., Dubois-Felsmann, G.P., Bosch, J.F., 2026, *Bulk Cutout Service Implementation Options*, Data Management Technical Note DMTN-326, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-326.lsst.io/>

- [987] Jessen, N.C., Nørgaard-Nielsen, H.U., Stevenson, T., et al., 2004, In: Antebi, J., Lemke, D. (eds.) *Astronomical Structures and Mechanisms Technology*, vol. 5495 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 23–30, doi:10.1117/12.550023, ADS Link
- [988] **[CTN-005]**, Johnson, A.S., 2025, *Shutter Timing and Motion Profiles*, Camera Technical Note CTN-005, NSF-DOE Vera C. Rubin Observatory, URL <https://ctn-005.lsst.io/>
- [989] **[LDM-643]**, Johnson, M., Gruendl, R.A., 2020, *Proposed DM OPS Rehearsals*, Data Management Controlled Document LDM-643, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-643.lsst.io/>
- [990] Jones, L., 2009, *Fast Transients to Long Period Variables: Timescales in LSST*, URL http://www.cacr.caltech.edu/hotwired2/program/presentations/jones_hotwiring.pdf, Presented at Hot-Wiring the Transient Universe 2, Santa Cruz
- [991] **[LSE-180]**, Jones, L., 2013, *Level 2 Photometric Calibration for the LSST Survey*, Systems Engineering Controlled Document LSE-180, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-180>
- [992] **[SMTN-001]**, Jones, L., 2016, *Simulating Moving Object Detections*, Simulations Team Technical Note SMTN-001, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-001.lsst.io/>
- [993] **[SMTN-003]**, Jones, L., 2017, *Trailing Losses for Moving Objects*, Simulations Team Technical Note SMTN-003, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-003.lsst.io/>
- [994] **[SMTN-009]**, Jones, L., 2017, *Minimoons and LSST*, Simulations Team Technical Note SMTN-009, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-009.lsst.io/>
- [995] **[SMTN-012]**, Jones, L., 2020, *Solar System Small Body Metrics*, Simulations Team Technical Note SMTN-012, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-012.lsst.io/>
- [996] **[SMTN-013]**, Jones, L., 2020, *Microlensing and TDE Metrics*, Simulations Team Technical Note SMTN-013, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-013.lsst.io/>
- [997] **[SMTN-014]**, Jones, L., 2020, *DESC Static Science (WFD) Metrics*, Simulations Team Technical Note SMTN-014, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-014.lsst.io/>
- [998] **[PSTR-001]**, Jones, L., 2024, *LWV-P105: Survey Strategy Acceptance Test Campaign Test Plan and Report*, PSTR-001, NSF-DOE Vera C. Rubin Observatory, URL <https://pstr-001.lsst.io/>

- [999] **[PSTR-002]**, Jones, L., 2025, *LW-P120 Survey Scheduler Acceptance Test Campaign Part 2 Test Plan and Report*, PSTR-002, NSF-DOE Vera C. Rubin Observatory, URL <https://pstr-002.lsst.io/>
- [1000] Jones, L., Brown, M., Ivezić, Z., et al., 2015, In: AAS/Division for Planetary Sciences Meeting Abstracts #47, vol. 47 of AAS/Division for Planetary Sciences Meeting Abstracts, 312.22, ADS Link
- [1001] **[RTN-102]**, Jones, R.L., 2025, *Counting Visits for Survey Scheduling*, Technical Note RTN-102, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-102.lsst.io/>
- [1002] **[SMTN-002]**, Jones, R.L., 2025, *Calculating LSST limiting magnitudes and SNR*, Simulations Team Technical Note SMTN-002, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-002.lsst.io/>
- [1003] Jones, R.L., Padmanabhan, N., Ivezić, Z., et al., 2010, In: Silva, D.R., Peck, A.B., Soifer, B.T. (eds.) *Observatory Operations: Strategies, Processes, and Systems III*, vol. 7737 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 77371F, doi:10.1117/12.857743, ADS Link
- [1004] Jones, R.L., Yoachim, P., Chandrasekharan, S., et al., 2014, In: Peck, A.B., Benn, C.R., Seaman, R.L. (eds.) *Observatory Operations: Strategies, Processes, and Systems V*, vol. 9149 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 91490B, doi:10.1117/12.2056835, ADS Link
- [1005] Jones, R.L., Slater, C.T., Moeyens, J., et al., 2018, *Icarus*, 303, 181 (arXiv:1711.10621), doi:10.1016/j.icarus.2017.11.033, ADS Link
- [1006] **[PSTN-051]**, Jones, R.L., Yoachim, P., Ivezić, Ž., Neilsen Jr., E.H., Ribeiro, T., 2021, *Survey Strategy and Cadence Choices for the Vera C. Rubin Observatory Legacy Survey of Space and Time (LSST)*, Project Science Technical Note PSTN-051, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-051.lsst.io/>, doi:10.71929/rubin/2584084
- [1007] Jordan, P.R., Jordan, D., Jerram, P.A., Pratlong, J., Swindells, I., 2014, In: Holland, A.D., Beletic, J. (eds.) *High Energy, Optical, and Infrared Detectors for Astronomy VI*, vol. 9154 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 91540M, doi:10.1117/12.2069423, ADS Link
- [1008] Jordi, C., Høg, E., Brown, A.G.A., de Bruijne, J., 2006, *Gaia spectrophotometers: optimization study*, Tech. rep., ESA, GAIA-CH-TN-UB-CJ-037

- [1009] Jordi, C., Høg, E., Brown, A.G.A., et al., 2006, MNRAS, 367, 290 (arXiv:astro-ph/0512038), doi:10.1111/j.1365-2966.2005.09944.x, ADS Link
- [1010] Jordi, C., Gebran, M., Carrasco, J.M., et al., 2010, A&A, 523, A48 (arXiv:1008.0815), doi:10.1051/0004-6361/201015441, ADS Link
- [1011] Juric, M., 2012, Large synoptic survey telescope: The era of petascale survey astronomy, URL <http://physics.illinois.edu/events/detail.asp?id=23401858&startDate=9/11/2012>, Astrophysics colloquium at University of Illinois, 9/11/2012
- [1012] **[DMTN-034]**, Juric, M., 2012, *Summer 2012 LSST DM Data Challenge*, Data Management Technical Note DMTN-034, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-034.lsst.io/>
- [1013] Juric, M., 2013, LSST: Introduction and Data Management Requirements, URL <http://wiki.ivoa.net/internal/IVOA/InterOpMay2013/juric.pdf>, Presented at the IVOA Interoperability Meeting, Heidelberg, Germany
- [1014] Juric, M., 2013, Enabling LSST Science: LSST Data Products, URL <https://project.lsst.org/meetings/lsst-europe-2013/sites/default/files/lsstcam13-juric.pdf>, LSST@Europe: The Path to Science, Cambridge
- [1015] Juric, M., 2013, LSST: Entering the Era of Petascale Astronomy, URL <http://research.majuric.org/wp/wp-content/uploads/2013/11/LSST-Northwestern-Final.pdf>, Northwestern University CIERA Interdisciplinary Colloquium, 12 November 2013
- [1016] Juric, M., 2013, LSST Data Management Entering the Era of Petascale Optical Astronomy, URL <http://www.slideserve.com/daphne/lsst-survey-data-products-mario-juric-lsst-data-management-project-scientist-radio-astronomy-in> Radio Astronomy in the LSST Era - Charlottesville, VA - May 6-8, 2013
- [1017] Juric, M., 2014, LSST/DM: Building a Next Generation Survey Data Processing System, URL <http://www.slideshare.net/MarioJuric/lsstdm-building-a-next-generation-survey-data-processing-system>, A presentation about LSST Data Management delivered at Harvard-Smithsonian CfA Code Coffee.
- [1018] Juric, M., 2014, Creating and Calibrating LSST Data Products, URL <http://www.slideshare.net/MarioJuric/gaiacal2014-talk-creating-and-calibrating-lsst-data-product>, Presented at Astrophysical calibration of Gaia and other surveys, Ringberg Castle

- [1019] Juric, M., 2014, Mapping the Milky Way with Large Surveys, URL <http://research.majuric.org/wp/wp-content/uploads/2013/11/MW-JHU-Final.pdf>, Johns Hopkins Astronomy Colloquium, 25 February 2014
- [1020] Juric, M., 2014, Large Synoptic Survey Telescope: Entering the Era of Petascale Optical Astronomy, URL <http://research.majuric.org/wp/wp-content/uploads/2013/11/LSST-STScI-20140204-Final.pdf>, Space Telescope Science Institute Colloquium, 4 February 2014
- [1021] Juric, M., 2015, Large sky surveys: Entering the era of software-bound astronomy, URL <http://iszd.hr/AstroInfo2015/program.php>, Presented at Astroinformatics 2015, Dubrovnik
- [1022] Juric, M., 2016, LSST Data Products, URL <https://project.lsst.org/meetings/lsst-europe-2016/sites/lsst.org.meetings.lsst-europe-2016/files/02%20-%20juric-LSST-LSSTEurope2-DataProducts-4.pptx>, Presented on 2016-06-20 at the LSST@Europe2 conference held in Serbia
- [1023] **[PSTN-025]**, Jurić, M., 2019, *LSST Moving Object Processing*, Project Science Technical Note PSTN-025, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-025.lsst.io/>
- [1024] Juric, M., 2025, mpsky: Multi-purpose sky catalog cross-matching, URL <https://github.com/mjuric/mpsky>
- [1025] **[LDM-582]**, Juric, M., Gruendl, R., 2017, *Lossy Compression Working Group Charge*, Data Management Controlled Document LDM-582, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-582>
- [1026] Juric, M., Lupton, R., 2016, LSST Data Management Brief Status Update, URL <http://dx.doi.org/10.5281/zenodo.47280>, Talk presented at the Winter 2016 LSST DESC Meeting held at SLAC., doi:10.5281/zenodo.47280
- [1027] Juric, M., Tyson, T., 2015, Highlights of Astronomy, 16, 675, doi:10.1017/S174392131401285X, ADS Link
- [1028] Juric, M., Monet, D., Gizis, J.E., et al., 2012, In: American Astronomical Society Meeting Abstracts #219, vol. 219 of American Astronomical Society Meeting Abstracts, 156.07, ADS Link

- [1029] **[LDM-134]**, Jurić, M., Allsman, R., Kantor, J., 2013, *Data Management Applications UML Use Case Model*, Data Management Controlled Document LDM-134, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-134>
- [1030] **[DMTN-035]**, Juric, M., Becker, A., Shaw, R., Krughoff, K.S., Kantor, J., 2013, *Winter 2013 LSST DM Data Challenge Release Notes*, Data Management Technical Note DMTN-035, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-035.lsst.io/>
- [1031] Juric, M., Kantor, J., Axelrod, T.S., et al., 2013, In: American Astronomical Society Meeting Abstracts #221, vol. 221 of American Astronomical Society Meeting Abstracts, 247.01, doi:10.5281/zenodo.192395, ADS Link
- [1032] **[LDM-133]**, Jurić, M., Lim, K.T., Kantor, J., 2013, *Data Management UML Domain Model*, Data Management Controlled Document LDM-133, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-133>
- [1033] Juric, M., Jones, L., Axelrod, T., Ivezić, Z., 2015, In: IAU General Assembly, vol. 29, 2256348, ADS Link
- [1034] Jurić, M., Kantor, J., Lim, K.T., et al., 2017, In: Lorente, N.P.F., Shortridge, K., Wayth, R. (eds.) *Astronomical Data Analysis Software and Systems XXV*, vol. 512 of Astronomical Society of the Pacific Conference Series, 279 (arXiv:1512.07914), doi:10.48550/arXiv.1512.07914, ADS Link
- [1035] Jurić, M., Kantor, J., Lim, K.T., et al., 2017, In: Lorente, N.P.F., Shortridge, K., Wayth, R. (eds.) *Astronomical Data Analysis Software and Systems XXV*, vol. 512 of Astronomical Society of the Pacific Conference Series, 279 (arXiv:1512.07914), doi:10.48550/arXiv.1512.07914, ADS Link
- [1036] Jurić, M., Kantor, J., Lim, K.T., et al., 2017, In: Lorente, N.P.F., Shortridge, K., Wayth, R. (eds.) *Astronomical Data Analysis Software and Systems XXV*, vol. 512 of Astronomical Society of the Pacific Conference Series, 279 (arXiv:1512.07914), doi:10.48550/arXiv.1512.07914, ADS Link
- [1037] **[LSE-319]**, Jurić, M., Ciardi, D., Dubois-Felsmann, G., Guy, L., 2019, *LSST Science Platform Vision Document*, Systems Engineering Controlled Document LSE-319, NSF-DOE Vera C. Rubin Observatory, URL <https://lse-319.lsst.io/>, doi:10.71929/rubin/2587242
- [1038] **[DMTN-087]**, Juric, M., Egg, S., Moeyens, J., Jones, L., 2020, *Proposed Modifications to Solar System Processing and Data Products*, Data Management Technical Note DMTN-087, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-087.lsst.io/>

- [1039] **[LSE-163]**, Jurić, M., Axelrod, T.S., Becker, A.C., et al., 2023, *Data Products Definition Document*, Systems Engineering Controlled Document LSE-163, NSF-DOE Vera C. Rubin Observatory, URL <https://lse-163.lsst.io/>, doi:10.71929/rubin/2587118
- [1040] Kahn, S.M., Kurita, N., Gilmore, K., et al., 2010, In: McLean, I.S., Ramsay, S.K., Takami, H. (eds.) *Ground-based and Airborne Instrumentation for Astronomy III*, vol. 7735 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 77350J, doi:10.1117/12.857920, ADS Link
- [1041] Kaiser, N., 2004, Addition of images with varying seeing, URL http://spider.ipac.caltech.edu/staff/fmasci/home/astro_refs/PanStars_Coadder.pdf, Pan-STARRS Document Control, PSDC-002-011-xx
- [1042] **[SITCOMTN-130]**, Kalmbach, B., 2024, *Masked Deblending in the Rubin Active Optics System Wavefront Estimation Pipeline*, Commissioning Technical Note SITCOMTN-130, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-130.lsst.io/>
- [1043] **[SITCOMTN-133]**, Kalmbach, B., 2024, *WEP performance as a function of exposure time*, Commissioning Technical Note SITCOMTN-133, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-133.lsst.io/>
- [1044] **[SITCOMTN-135]**, Kalmbach, B., 2024, *Pipeline Tasks in the AOS Wavefront Estimation Pipeline*, Commissioning Technical Note SITCOMTN-135, Vera C. Rubin Observatory, URL <https://sitcomtn-135.lsst.io/>
- [1045] Kane, T.R., Likins, P.W., Levinson, D.A., 1983, *Spacecraft dynamics*, McGraw Hill Book Company, 1 edn.
- [1046] **[SITCOMTN-058]**, Kang, Y., 2023, *Creation of the Star Catalog for CWFS correction*, Commissioning Technical Note SITCOMTN-058, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-058.lsst.io/>
- [1047] **[SITCOMTN-096]**, Kang, Y., 2023, *Verification of the correct functioning of the M2 axial and tangent actuators in the closed-loop mode*, Commissioning Technical Note SITCOMTN-096, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-096.lsst.io/>
- [1048] **[SITCOMTN-082]**, Kang, Y., Quint, B.C., Gonzalez, N., 2026, *Hard Point Breakaway Analysis*, Commissioning Technical Note SITCOMTN-082, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-082.lsst.io/>

- [1049] **[DMTN-215]**, Kannawadi, A., 2023, *Tracking noise properties in Rubin Science Pipelines processing*, Data Management Technical Note DMTN-215, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-215.lsst.io/>
- [1050] **[DMTN-190]**, Kannawadi, A., 2025, *Consistent galaxy colors with Gaussian-Aperture and PSF photometry*, Data Management Technical Note DMTN-190, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-190.lsst.io/>, doi:10.71929/rubin/2583849
- [1051] Kantor, J., 2008, Lsst data management: Making petascale data accessible, New Astronomy: The Data Challenge, Rio de Janeiro, Brazil
- [1052] Kantor, J., 2008, Lsst network requirements, Brazilian Symposium of Computer Networks and Distributed Systems
- [1053] Kantor, J., 2008, Lsst data management: Making petascale data accessible, URL <http://www.slideserve.com/rusty/jeff-kantor-lsst-data-management-systems-manager-lsst-corporation-institute-for-astronomy>, Talk at Institute for Astronomy, University of Hawaii, 19 June 2008
- [1054] Kantor, J., 2008, Lsst processing: Challenges and solutions, PUCÓN SYMPOSIUM 2008, Fifth AccessNova Forum: Ubiquitous Networks in Advanced Applications
- [1055] Kantor, J., 2008, Lsst overview, PUCÓN SYMPOSIUM 2008, Fifth AccessNova Forum: Ubiquitous Networks in Advanced Applications
- [1056] Kantor, J., 2010, In: Radziwill, N.M., Bridger, A. (eds.) *Software and Cyberinfrastructure for Astronomy*, vol. 7740 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 77401O, doi:10.1117/12.857253, ADS Link
- [1057] **[Document-26217]**, Kantor, J., 2010, *Data Challenge 3b Performance Test 1.1*, Informal Construction Document Document-26217, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-26217>
- [1058] Kantor, J., 2014, In: Wozniak, P.R., Graham, M.J., Mahabal, A.A., Seaman, R. (eds.) *The Third Hot-wiring the Transient Universe Workshop*, 19–26, ADS Link
- [1059] **[Document-14789]**, Kantor, J., 2014, *LSST Long-Haul Networks (LHN) End-to-end Test Plan*, Informal Construction Document Document-14789, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/document-14789>

- [1060] Kantor, J., 2015, Computing for ngvla: Lessons from lsst, URL <https://science.nrao.edu/science/meetings/2015/ngvla-tech-workshop/program>, Presented at Second ngVLA Technical Workshop, Socorro, NM
- [1061] **[LDM-324]**, Kantor, J., 2016, *Data Management Information Security Plan*, Data Management Controlled Document LDM-324, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-324>
- [1062] **[LDM-142]**, Kantor, J., 2017, *Network Sizing Model*, Data Management Controlled Document LDM-142, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-142>
- [1063] **[LSE-309]**, Kantor, J., 2017, *Summit to Base Information Technology and Communication (ITC) Design*, Systems Engineering Controlled Document LSE-309, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-309>
- [1064] **[Document-28547]**, Kantor, J., 2018, *LSST Network Bandwidth Tests between Chile and the United States*, Informal Construction Document Document-28547, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-28547>
- [1065] **[DMTR-151]**, Kantor, J., 2019, *LWV-P47 Summit - Base Network Integration Test Plan and Report*, Data Management Test Report DMTR-151, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-151.lsst.io/>
- [1066] **[DMTR-241]**, Kantor, J., 2020, *LWV-P73: Network Pre-Verification for Operation Rehearsal #2 Test Plan and Report*, Data Management Test Report DMTR-241, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-241.lsst.io/>
- [1067] **[LDM-732]**, Kantor, J., 2020, *Vera C. Rubin Observatory Network Verification Document*, Data Management Controlled Document LDM-732, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-732.lsst.io/>
- [1068] Kantor, J., Axelrod, T., 2005, LSST Data Management Status, URL <http://www.slideshare.net/datacenters/sweeney-dm-status-review-20050322ppt>, Presented at DM Status Review
- [1069] Kantor, J., Axelrod, T., 2010, In: Radziwill, N.M., Bridger, A. (eds.) *Software and Cyberinfrastructure for Astronomy*, vol. 7740 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 77401N, doi:10.1117/12.857280, ADS Link
- [1070] Kantor, J., Jagatheesan, A., 2010, In: 26th IEEE (MSST2010) Symposium on Massive Storage Systems and Technologies, IEEE MSST2010, LSST Corporation, IEEE, URL <http://storageconference.us/2010/Presentations/MSST/4.Kantor.pdf>

- [1071] **[Document-7025]**, Kantor, J., Krabbendam, V., 2011, *DM Risk Register*, Informal Construction Document Document-7025, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-7025>
- [1072] **[LPM-81]**, Kantor, J., Krabbendam, V., 2015, *Cost Estimating Plan*, Project Controlled Document LPM-81, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-81>
- [1073] Kantor, J., Axelrod, T., Becla, J., et al., 2007, In: Shaw, R.A., Hill, F., Bell, D.J. (eds.) *Astronomical Data Analysis Software and Systems XVI*, vol. 376 of *Astronomical Society of the Pacific Conference Series*, 3, ADS Link
- [1074] **[Document-9044]**, Kantor, J., Axelrod, T., Allsman, R., Freemon, M., Lim, K.T., 2010, *Data Challenge 3b Overview*, Informal Construction Document Document-9044, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-9044>
- [1075] **[LDM-138]**, Kantor, J., Axelrod, T., Lim, K.T., 2013, *Data Management Compute Sizing Model*, Data Management Controlled Document LDM-138, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-138>
- [1076] **[LDM-240]**, Kantor, J., Jurić, M., Lim, K.T., 2016, *Data Management Releases*, Data Management Controlled Document LDM-240, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-240>
- [1077] Kantor, J., Long, K., Becla, J., et al., 2016, In: Angeli, G.Z., Dierickx, P. (eds.) *Modeling, Systems Engineering, and Project Management for Astronomy VI*, vol. 9911 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, 99110N, doi:10.1117/12.2233380, ADS Link
- [1078] Kantor, J., Long, K., Becla, J., et al., 2016, *Agile software development in an earned value world: a survival guide*, URL <http://dx.doi.org/10.5281/zenodo.56593>,
Talk at the SPIE Astronomical Telescopes and Instrumentation Conference, Edinburgh, UK, doi:10.5281/zenodo.56593
- [1079] Kantor, J., Long, K., Becla, J., et al., 2016, In: Angeli, G.Z., Dierickx, P. (eds.) *Modeling, Systems Engineering, and Project Management for Astronomy VI*, vol. 9911 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, 99110N, doi:10.1117/12.2233380, ADS Link
- [1080] Kantor, J.P., 2006, In: Lewis, H., Bridger, A. (eds.) *Advanced Software and Control for Astronomy*, vol. 6274 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, 62740P, doi:10.1117/12.671685, ADS Link

- [1081] Kantor, J.P., 2012, In: Angeli, G.Z., Dierickx, P. (eds.) Modeling, Systems Engineering, and Project Management for Astronomy V, vol. 8449 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 84490N, doi:10.1117/12.924887, ADS Link
- [1082] Katz, D., 2006, Gaia - RVS: DPAC and CU6, URL http://wwwhip.obspm.fr/gaia/cu6/workshop_2/CU6_w2_Katz_intro.pdf,
CU6 Workshop2
- [1083] **[SITCOMTN-121]**, Kelkar, K., 2024, *Summary of TMA tests*, Commissioning Technical Note SITCOMTN-121, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-121.lsst.io/>
- [1084] **[SITCOMTN-145]**, Kelkar, K., 2024, *TEA vibration analyses*, Commissioning Technical Note SITCOMTN-145, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-145.lsst.io/>
- [1085] Kelly, P.L., von der Linden, A., Applegate, D., et al., 2012, Big MACS: Accurate photometric calibration, Astrophysics Source Code Library, record ascl:1208.007 (ascl:1208.007), ADS Link
- [1086] **[DMTN-270]**, Kelvin, L., 2023, *Bright Star Subtraction in the LSST Science Pipelines*, Data Management Technical Note DMTN-270, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-270.lsst.io/>
- [1087] **[SCTR-115]**, Kelvin, L., 2025, *System-level Science Verification Acceptance Test Campaign: Low Surface Brightness Test Plan and Report*, Commissioning Technical Report SCTR-115, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-115.lsst.io/>
- [1088] **[SITCOMTN-069]**, Kelvin, L.S., Dell'Antonio, I., Drlica-Wagner, A., et al., 2023, *LSB SciUnit Data Requirements Document*, Commissioning Technical Note SITCOMTN-069, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-069.lsst.io/>
- [1089] Kerekes, G., Budavári, T., Csabai, I., Connolly, A.J., Szalay, A.S., 2010, *ApJ*, 719, 59 (arXiv:1006.2096), doi:10.1088/0004-637X/719/1/59, ADS Link
- [1090] **[Publication-144]**, Kessler, R., et al., 2011, *Science White Paper for LSST Deep-Drilling Field Observations: Supernova Light Curves*, LSST Construction Publication Publication-144, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Publication-144>
- [1091] **[DMTN-002]**, Kind, M.C., 2016, *SuperTask and Activator Notes*, Data Management Technical Note DMTN-002, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-002.lsst.io/>

- [1092] **[DMTN-033]**, Kind, M.C., 2016, *Cluster and container management with Kubernetes*, Data Management Technical Note DMTN-033, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-033.lsst.io/>
- [1093] Kirsch, N., 2012, WD Red 3TB NAS Hard Drive Review, URL <http://www.legitreviews.com/article/2092/3/>
- [1094] van Klaveren, B., 2016, LSST Data Access and VO: Pathfinding through TAP, ADQL and beyond, URL http://wiki.ivoa.net/internal/IVOA/InterOpMay2016-DAL/LSST_DAX_IVOA_Interop_May-2016.pdf,
Presentation at the Northern Spring IVOA Meeting, South Africa
- [1095] **[SITCOMTN-059]**, Kleinman, S., Johnson, T., Ingraham, P., 2023, *FAFF Implementation Group (FIG) Mandate*, Commissioning Technical Note SITCOMTN-059, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-059.lsst.io/>
- [1096] **[RTN-094]**, Kleinman, S.J., Dennihy, E., Christensen, E.J., et al., 2026, *Summit Facility ConOps v1.00*, Technical Note RTN-094, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-094.lsst.io/>
- [1097] Klioner, S.A., 2001, arXiv e-prints, astro-ph/0107457 (arXiv:astro-ph/0107457), doi:10.48550/arXiv.astro-ph/0107457, ADS Link
- [1098] Klioner, S.A., 2003, *AJ*, 125, 1580, doi:10.1086/367593, ADS Link
- [1099] Klioner, S.A., 2004, *Phys. Rev. D*, 69, 124001 (arXiv:astro-ph/0311540), doi:10.1103/PhysRevD.69.124001, ADS Link
- [1100] Klioner, S.A., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special Publication, 207 (arXiv:astro-ph/0411362), doi:10.48550/arXiv.astro-ph/0411362, ADS Link
- [1101] Klioner, S.A., 2008, *A&A*, 478, 951, doi:10.1051/0004-6361:20077786, ADS Link
- [1102] Klioner, S.A., 2008, In: Dittus, H., Lammerzähl, C., Turyshev, S.G. (eds.) *Lasers, Clocks and Drag-Free Control: Exploration of Relativistic Gravity in Space*, vol. 349 of Astrophysics and Space Science Library, 399, doi:10.1007/978-3-540-34377-6_19, ADS Link
- [1103] Klioner, S.A., Peip, M., 2003, *A&A*, 410, 1063 (arXiv:astro-ph/0305204), doi:10.1051/0004-6361:20031283, ADS Link
- [1104] Klioner, S.A., Soffel, M.H., 2000, *Phys. Rev. D*, 62, 024019 (arXiv:gr-qc/9906123), doi:10.1103/PhysRevD.62.024019, ADS Link

- [1105] Klioner, S.A., Soffel, M.H., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special Publication, 305 (arXiv:astro-ph/0411363), doi:10.48550/arXiv.astro-ph/0411363, ADS Link
- [1106] Klioner, S.A., Zschocke, S., Soffel, M.H., Butkevich, A.G., 2010, arXiv e-prints, arXiv:1002.5016 (arXiv:1002.5016), doi:10.48550/arXiv.1002.5016, ADS Link
- [1107] Knight, S., 2005, *Computing in Science and Engineering*, 7, 79, doi:10.1109/MCSE.2005.11, ADS Link
- [1108] Knight, S., 2005, *Computing in Science Engineering*, 7, 79, doi:10.1109/MCSE.2005.11, ADS Link
- [1109] Kobayashi, Y., Gouda, G., Tsujimoto, T., et al., 2006, In: *IAU Joint Discussion*, vol. 26 of IAU Joint Discussion, 32, ADS Link
- [1110] Kohley, R., Garé, P., Vétel, C., Marchais, D., Chassat, F., 2012, In: Clampin, M.C., Fazio, G.G., MacEwen, H.A., Oschmann, J.M., Jr. (eds.) *Space Telescopes and Instrumentation 2012: Optical, Infrared, and Millimeter Wave*, vol. 8442 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 84421P, doi:10.1117/12.926144, ADS Link
- [1111] Kopeikin, S., Vlasov, I., 2004, *Phys. Rep.*, 400, 209 (arXiv:gr-qc/0403068), doi:10.1016/j.physrep.2004.08.004, ADS Link
- [1112] Koppelman, H., Helmi, A., Veljanoski, J., 2018, *ApJ*, 860, L11 (arXiv:1804.11347), doi:10.3847/2041-8213/aac882, ADS Link
- [1113] Korn, G.A., Korn, T.M., 1961, *Mathematical handbook for scientists and engineers*, McGraw Hill Book Company, 1 edn.
- [1114] **[DMTN-179]**, Kovács, G., 2021, *The ZOGY image differencing matching kernel and PSF solutions and their practical implementation issues*, Data Management Technical Note DMTN-179, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-179.lsst.io/>
- [1115] Kovalevsky, J., 1998, *ARA&A*, 36, 99, doi:10.1146/annurev.astro.36.1.99, ADS Link
- [1116] Kovalevsky, J., Lindegren, L., Froeschle, M., et al., 1995, *A&A*, 304, 34, ADS Link
- [1117] **[DMTN-040]**, Kowalik, M., 2018, *A closer look at Pegasus WMS*, Data Management Technical Note DMTN-040, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-040.lsst.io/>

- [1118] **[DMTN-154]**, Kowalik, M., 2020, *DBB Buffer Managers*, Data Management Technical Note DMTN-154, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-154.lsst.io/>
- [1119] **[DMTN-042]**, Kowalik, M., Chiang, H.F., Gower, M., Pietrowicz, S., Kooper, R., 2017, *Batch Production Services: Creating Workflows*, Data Management Technical Note DMTN-042, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-042.lsst.io/>
- [1120] **[DMTN-025]**, Kowalik, M., Chiang, H.F., Daues, G., Kooper, R., 2018, *A survey of workflow management systems*, Data Management Technical Note DMTN-025, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-025.lsst.io/>
- [1121] **[LDM-633]**, Kowalik, M., Gower, M., Kooper, R., 2019, *Offline Batch Production Services Use Cases*, Data Management Controlled Document LDM-633, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-633.lsst.io/>
- [1122] **[LDM-636]**, Kowalik, M., Gower, M., Kooper, R., 2019, *Batch Production Service Requirements*, Data Management Controlled Document LDM-636, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-636.lsst.io/>
- [1123] **[LPM-72]**, Krabbendam, V., 2015, *Scope Options*, Project Controlled Document LPM-72, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-72>
- [1124] **[LPM-20]**, Krabbendam, V., Selvy, B., 2015, *Risk & Opportunity Management Plan*, Project Controlled Document LPM-20, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-20>
- [1125] **[DMTN-261]**, Krabbendam, V., Matheson, T., Blum, R., 2024, *On the use of the CSDC ANTARES Broker for the Rubin/LSST Alert Filtering Service.*, Data Management Technical Note DMTN-261, Vera C. Rubin Observatory, URL <https://dmtn-261.lsst.io/>
- [1126] **[LPM-125]**, Krabendam, V., Goodenow, I., 2016, *Project Management Office Information Security Plan*, Project Controlled Document LPM-125, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-125>
- [1127] **[EISD-EPNS-00003]**, Krall, C., 2004, *IMPLEMENTATION OF THE ESA NETWORK SECURITY POLICY*,
EISD-EPNS-00003
- [1128] Krisciunas, K., Schaefer, B.E., 1991, PASP, 103, 1033, doi:10.1086/132921, ADS Link
- [1129] Kron, R.G., 1980, ApJS, 43, 305, doi:10.1086/190669, ADS Link

- [1130] Kruchten, P., 2003, *The Rational Unified Process: An Introduction*, Addison-Wesley Professional, 3rd edn.
- [1131] Krughoff, K.S., 2014, Image differencing for lsst, URL <http://dx.doi.org/10.5281/zenodo.45300>,
ZTF-LSST Joint Meeting November 12th 2014
- [1132] Krughoff, K.S., 2015, In: The Fourth Hot-wiring the Transient Universe Workshop, Santa Barbara, URL http://lcogt.net/files/media/Krughoff_Hotwiring-2015-final.pptx
- [1133] **[LSE-349]**, Krughoff, K.S., 2019, *Defining the Transformation Between Camera Engineering Coordinates and Camera Data Visualization Coordinates*, Systems Engineering Controlled Document LSE-349, NSF-DOE Vera C. Rubin Observatory, URL <https://lse-349.lsst.io/>
- [1134] **[PSTN-023]**, Krughoff, K.S., 2019, *LSST Data Management Quality Assurance and Reliability Engineering*, Project Science Technical Note PSTN-023, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-023.lsst.io/>
- [1135] **[SQR-021]**, Krughoff, S., 2018, *An Example JupyterLab Development Workflow*, SQuaRE Technical Note SQR-021, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-021.lsst.io/>
- [1136] **[SQR-025]**, Krughoff, S., 2019, *Welcome to the Notebook Aspect of the LSST Science Platform*, SQuaRE Technical Note SQR-025, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-025.lsst.io/>
- [1137] **[DMTN-142]**, Krughoff, S., 2020, *From Notebook to Library: Dealing with analysis code*, Data Management Technical Note DMTN-142, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-142.lsst.io/>
- [1138] **[SQR-047]**, Krughoff, S., 2020, *Technical considerations for nublado design*, SQuaRE Technical Note SQR-047, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-047.lsst.io/>
- [1139] **[DMTR-291]**, Krughoff, S., 2021, *DM-503-EFDa: EFD on Summit for M1/M3 Test Plan and Report*, Data Management Test Report DMTR-291, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-291.lsst.io/>
- [1140] **[DMTN-082]**, Krughoff, S., Economou, F., 2018, *On accessing EFD data in the Science Platform*, Data Management Technical Note DMTN-082, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-082.lsst.io/>

- [1141] **[DMTN-074]**, Krughoff, S., Swinbank, J., 2018, *DM QA Status & Plans*, Data Management Technical Note DMTN-074, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-074.lsst.io/>
- [1142] **[DMTR-41]**, Krughoff, S., Wood-Vasey, J., 2017, *Characterization Metric Report: Science Pipelines Version 14.0*, Data Management Test Report DMTR-41, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/DMTR-41>
- [1143] Kubica, J., Axelrod, T., Barnard, K., et al., 2005, In: American Astronomical Society Meeting Abstracts, vol. 207 of American Astronomical Society Meeting Abstracts, 26.32, ADS Link
- [1144] Kubica, J., Denneau, L., Jr., Moore, A., Jedicke, R., Connolly, A., 2007, In: Shaw, R.A., Hill, F., Bell, D.J. (eds.) *Astronomical Data Analysis Software and Systems XVI*, vol. 376 of Astronomical Society of the Pacific Conference Series, 395, ADS Link
- [1145] Kuijken, K., 2008, *A&A*, 482, 1053 (arXiv:astro-ph/0610606), doi:10.1051/0004-6361:20066601, ADS Link
- [1146] Kuijken, K., Heymans, C., Hildebrandt, H., et al., 2015, *MNRAS*, 454, 3500 (arXiv:1507.00738), doi:10.1093/mnras/stv2140, ADS Link
- [1147] Kunszt, P.Z., Szalay, A.S., Thakar, A.R., 2001, In: Banday, A.J., Zaroubi, S., Bartelmann, M. (eds.) *Mining the Sky*, 631, doi:10.1007/10849171_83, ADS Link
- [1148] **[SITCOMTN-018]**, Lage, C., 2021, *Working with Rubin EFD timestamps.*, Commissioning Technical Note SITCOMTN-018, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-018.lsst.io/>
- [1149] **[SITCOMTN-028]**, Lage, C., 2021, *Temperature compensation of the AuxTel focus model*, Commissioning Technical Note SITCOMTN-028, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-028.lsst.io/>
- [1150] **[SITCOMTN-051]**, Lage, C., 2022, *AuxTel mount jitter studies with data from accelerometers and anemometer.*, Commissioning Technical Note SITCOMTN-051, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-051.lsst.io/>
- [1151] **[SITCOMTN-056]**, Lage, C., 2023, *Azimuth drive hysteresis in the Auxiliary Telescope*, Commissioning Technical Note SITCOMTN-056, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-056.lsst.io/>

- [1152] **[SITCOMTN-057]**, Lage, C., 2023, *Preliminary study of TMA performance based on soak testing from 26-Jan-2023*, Commissioning Technical Note SITCOMTN-057, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-057.lsst.io/>
- [1153] **[SITCOMTN-071]**, Lage, C., 2023, *StarTracker Narrow Camera to Fast Camera Offsets*, Commissioning Technical Note SITCOMTN-071, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-071.lsst.io/>
- [1154] **[SITCOMTN-083]**, Lage, C., Sanmartim, D., 2024, *M1M3 mirror cell bump testing*, Commissioning Technical Note SITCOMTN-083, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-083.lsst.io/>
- [1155] **[SITCOMTN-067]**, Lage, C.S., 2024, *Velocity, Acceleration, and Jerk analysis of TMA slews*, Commissioning Technical Note SITCOMTN-067, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-067.lsst.io/>
- [1156] **[SITCOMTN-107]**, Lage, C.S., 2024, *M1M3 actuator delays and following errors*, Commissioning Technical Note SITCOMTN-107, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-107.lsst.io/>
- [1157] **[SITCOMTN-112]**, Lage, C.S., 2024, *TMA tracking jitter and settling time analysis*, Commissioning Technical Note SITCOMTN-112, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-112.lsst.io/>
- [1158] **[SITCOMTN-125]**, Lage, C.S., 2024, *Neural network classification of AuxTel mount tracking failures.*, Commissioning Technical Note SITCOMTN-125, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-125.lsst.io/>
- [1159] **[SITCOMTN-026]**, Lage, C.S., 2025, *AuxTel PowerUp sequence*, Commissioning Technical Note SITCOMTN-026, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-026.lsst.io/>
- [1160] **[SITCOMTN-094]**, Lage, C.S., 2025, *Interfacing with the Auxiliary Telescope dome hardware.*, Commissioning Technical Note SITCOMTN-094, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-094.lsst.io/>
- [1161] **[SITCOMTN-153]**, Lage, C.S., 2025, *Improving temperature control of the AuxTel WREB board*, Commissioning Technical Note SITCOMTN-153, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-153.lsst.io/>

- [1162] **[SITCOMTN-168]**, Lage, C.S., 2025, *Hexapod motions while exposing.*, Commissioning Technical Note SITCOMTN-168, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-168.lsst.io/>
- [1163] **[SITCOMTN-074]**, Lage, C.S., 2026, *LATISS Warm-up and Cool-down Procedure*, Commissioning Technical Note SITCOMTN-074, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-074.lsst.io/>
- [1164] **[SITCOMTN-043]**, Lage, C.S., Gomez Jimenez, M., 2025, *Auxiliary Telescope Polycold chiller maintenance procedures.*, Commissioning Technical Note SITCOMTN-043, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-043.lsst.io/>
- [1165] Laher, R.R., Levine, D., Mannings, V., et al., 2009, In: Bohlender, D.A., Durand, D., Dowler, P. (eds.) *Astronomical Data Analysis Software and Systems XVIII*, vol. 411 of Astronomical Society of the Pacific Conference Series, 106, ADS Link
- [1166] **[RTN-108]**, Laliotis, K., Léget, P.F., Roodman, A., et al., 2026, *Impact of CCD Non-Flatness In Rubin LSSTCam PSF Measurements and Modeling*, Technical Note RTN-108, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-108.lsst.io/>
- [1167] Lallo, M. and Petro, L., 1999, *Bidirectional reflectance distribution function for the NGST mirrors*, Tech. rep., Space Telescope Science Institute
- [1168] **[LSE-78]**, Lambert, R., Kantor, J., Huffer, M., et al., 2017, *LSST Observatory Network Design*, Systems Engineering Controlled Document LSE-78, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-78>
- [1169] Lammers, U., ,
unpublished results - see also http://www.rssd.esa.int/\protect\discretionary{\char\hyphenchar\font}{\{}}GAIA/\protect\discretionary{\char\hyphenchar\font}{\{}}PoW_ground_station_visibility.html
- [1170] Lammers, U., ,
unpublished results
- [1171] Lammers, U., Lindegren, L., O'Mullane, W., Hobbs, D., 2009, In: Bohlender, D.A., Durand, D., Dowler, P. (eds.) *Astronomical Data Analysis Software and Systems XVIII*, vol. 411 of Astronomical Society of the Pacific Conference Series, 55, ADS Link
- [1172] Lange, T., Nordby, M., Pollek, H., et al., 2024, In: Bryant, J.J., Motohara, K., Vernet, J.R.D. (eds.) *Ground-based and Airborne Instrumentation for Astronomy X*, vol. 13096 of

Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 130961O,
doi:10.1117/12.3019302, ADS Link

- [1173] Larman, C., Basili, V.R., 2003, *Computer*, 36, 47, doi:10.1109/MC.2003.1204375
- [1174] Lasker, B.M., Lattanzi, M.G., McLean, B.J., et al., 2008, *AJ*, 136, 735 (arXiv:0807.2522),
doi:10.1088/0004-6256/136/2/735, ADS Link
- [1175] Lattanzi, M., Drimmel, R., 2003,
private communication
- [1176] Lattanzi, M.G., Spagna, A., Sozzetti, A., Casertano, S., 2000, *MNRAS*, 317, 211
(arXiv:astro-ph/0005024), doi:10.1046/j.1365-8711.2000.03637.x, ADS Link
- [1177] Lattanzi, M.G., Casertano, S., Jancart, S., et al., 2005, In: Turon, C., O'Flaherty, K.S.,
Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special
Publication, 251, ADS Link
- [1178] Lazio, J.W., Kimball, A., Barger, A.J., et al., 2014, *PASP*, 126, 196 (arXiv:1401.0716),
doi:10.1086/675262, ADS Link
- [1179] **[RTN-103]**, Le Boulc'h, Q., 2025, *Procedure for creating a butler repository at FrDF for
ComCam multisite campaigns*, Technical Note RTN-103, NSF-DOE Vera C. Rubin Observa-
tory, URL <https://rtn-103.lsst.io/>
- [1180] Le Fèvre, O., Tasca, L.A.M., Cassata, P., et al., 2015, *A&A*, 576, A79 (arXiv:1403.3938),
doi:10.1051/0004-6361/201423829, ADS Link
- [1181] van Leeuwen, F., 1997, *The Hipparcos Mission*, Springer, Space Science Reviews, Vol.81
edn.
- [1182] **[DMTN-328]**, Léget, P.F., 2025, *Evaluating Brighter Fatter correction on LSSTCam from on
sky observation at the Vera C. Rubin Observatory.*, Data Management Technical Note DMTN-
328, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-328.lsst.io/>
- [1183] **[SCTR-112]**, Leget, P.F., 2025, *System-level Science Verification Acceptance Test Campaign:
Astrometric Calibration Test Plan and Report*, Commissioning Technical Report SCTR-112,
NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-112.lsst.io/>
- [1184] Léget, P.F., Astier, P., Regnault, N., et al., 2021, *A&A*, 650, A81 (arXiv:2103.09881),
doi:10.1051/0004-6361/202140463, ADS Link

- [1185] Leistedt, B., Hogg, D.W., 2017, *ApJ*, 838, 5 (arXiv:1612.00847), doi:10.3847/1538-4357/aa6332, ADS Link
- [1186] Lejeune, T., Cuisinier, F., Buser, R., 1998, *A&AS*, 130, 65 (arXiv:astro-ph/9710350), doi:10.1051/aas:1998405, ADS Link
- [1187] Lenhardt, H., 2003, *GIS implementation in GDAAS2: Detailed Geometrical Calibration*, Tech. rep., ARI, GAIA-ARI-HL-001
- [1188] **[SATSCMP]**, Leon, I., 2009, *SCIENCE ARCHIVE - SOFTWARE CONFIGURATION MANAGEMENT PLAN (SCMP)*, SAT_GEN_PL_2.0_01_SCMP_05112009, URL http://www.rssd.esa.int/llink/livelink/fetch/-415780/495310/1051419/Sw_Conf_Mng_Plan_v2-0.pdf?nodeid=2942288&vernum=-2
- [1189] **[SITCOMTN-172]**, Levine, B., 2025, *Mask Generation for Abell 360 in LSSTComCam Data Preview 1*, Commissioning Technical Note SITCOMTN-172, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-172.lsst.io/>
- [1190] Levine, D.A., Mannings, V., Cutri, R., et al., 2007, In: American Astronomical Society Meeting Abstracts, vol. 211 of American Astronomical Society Meeting Abstracts, 137.24, ADS Link
- [1191] **[Document-37653]**, Li, X., Ragosta, F., Bianco, F., et al., 2021, *Rubin Cadence Note - Anomaly Detection*, Informal Construction Document Document-37653, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-37653>
- [1192] **[SITCOMTN-164]**, Li, X., Adari, P., von der Linden, A., Mandelbaum, R., 2025, *AnaCal Shear Profile of Abell 360 in LSSTComCam Data Preview 1*, Commissioning Technical Note SITCOMTN-164, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-164.lsst.io/>, doi:10.71929/rubin/3000577
- [1193] **[DMTN-201]**, Li, Y.T., 2021, *USDF Object Storage Architecture and Planning*, Data Management Technical Note DMTN-201, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-201.lsst.io/>
- [1194] **[RTN-025]**, Li, Y.T., 2021, *USDF Object Storage Architecture and Planning*, Technical Note RTN-025, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-025.lsst.io/>
- [1195] **[CTN-006]**, Liang, S., 2025, *Guide Star Catalog*, Camera Technical Note CTN-006, NSF-DOE Vera C. Rubin Observatory, URL <https://ctn-006.lsst.io/>

- [1196] **[CTN-002]**, Liang, S., Johnson, A.S., Rasmussen, A.P., Utsumi, Y., Roodman, A., 2025, *Camera Shutter Motion Analysis*, Camera Technical Note CTN-002, NSF-DOE Vera C. Rubin Observatory, URL <https://ctn-002.lsst.io/>
- [1197] **[RDO-121]**, Lim, K., O'Mullane, W., 2025, *Vera C. Rubin Observatory Prerelease Data Policy*, Data Management Operations Controlled Document RDO-121, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/RDO-121>
- [1198] Lim, K.T., 2007, Preparing for scores of petabytes, IEEE Mass Storage Symposium, San Diego, CA, September 26, 2007
- [1199] Lim, K.T., 2008, Lsst and scidb, Stanford HPC Conference, Stanford, CA, USA, August 28, 2008
- [1200] Lim, K.T., 2008, Cyberinfrastructure lessons from Lsst data management, iPlant Workshop (remote presentation), December 16, 2008
- [1201] Lim, K.T., 2008, The Lsst data management system, Talk at Keck Observatory, December 2, 2008
- [1202] Lim, K.T., 2008, Astronomy, petabytes, and mysql, URL <http://conferences.oreilly.com/mysql12008/public/schedule/detail/849>, MySQL Conference, Santa Clara, CA, April 16, 2008
- [1203] Lim, K.T., 2011, Lsst applications and middleware, Talk at Fermilab, May 12, 2011
- [1204] Lim, K.T., 2012, The Lsst database: What to expect, AAS Splinter Meeting, Austin TX, January 8, 2012
- [1205] Lim, K.T., 2012, Xldb and the large synoptic survey telescope, URL <http://idke.ruc.edu.cn/xldb/www.xldb-asia.org/slides/XLDB%20Asia%20-%20LSST.pdf>, XLDB Asia, Beijing, China, June 22-23 2012
- [1206] **[Document-15097]**, Lim, K.T., 2013, *LSST Data Challenge Report: Summer 2013*, Informal Construction Document Document-15097, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-15097>
- [1207] Lim, K.T., 2014, A quick tour of the Lsst software stack, URL <https://indico.fnal.gov/contributionDisplay.py?contribId=52&confId=7946>, Talk at DES-LSST Workshop, Fermilab, March 25, 2014

- [1208] Lim, K.T., 2014, The designs for lsst's extremely large databases, URL <http://xldb-rio2014.linea.gov.br/abstract/#ktlim>, XLDB South America 2014, Rio de Janeiro, Brazil, June 4, 2014
- [1209] Lim, K.T., 2015, Astroparticle physics: An lsst perspective, URL http://indico.cern.ch/event/357737/session/3/contribution/16/attachments/712039/977483/HEPSWF_Meeting.pdf, HEP Software Foundation Workshop, SLAC National Accelerator Lab, January 20, 2015
- [1210] **[DMTN-050]**, Lim, K.T., 2017, *EFD Handling within DM*, Data Management Technical Note DMTN-050, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-050.lsst.io/>
- [1211] **[DMTN-052]**, Lim, K.T., 2017, *Initial Installation of a DAQ Test Stand at NCSA*, Data Management Technical Note DMTN-052, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-052.lsst.io/>
- [1212] **[DMTN-067]**, Lim, K.T., 2017, *Catalog Data Model*, Data Management Technical Note DMTN-067, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-067.lsst.io/>
- [1213] **[DMTN-103]**, Lim, K.T., 2018, *LSST Science Platform Deployments*, Data Management Technical Note DMTN-103, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-103.lsst.io/>
- [1214] **[DMTN-111]**, Lim, K.T., 2019, *DM Usage in Observatory Operations*, Data Management Technical Note DMTN-111, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-111.lsst.io/>
- [1215] **[DMTN-125]**, Lim, K.T., 2019, *Google Cloud Engagement Results*, Data Management Technical Note DMTN-125, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-125.lsst.io/>
- [1216] **[DMTN-132]**, Lim, K.T., 2019, *Independent LSST Identity Management*, Data Management Technical Note DMTN-132, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-132.lsst.io/>
- [1217] **[LSE-400]**, Lim, K.T., 2019, *Header Service Interface*, Systems Engineering Controlled Document LSE-400, NSF-DOE Vera C. Rubin Observatory, URL <https://lse-400.lsst.io>
- [1218] **[DMTN-150]**, Lim, K.T., 2020, *LSST + Google Cloud Proof of Concept 2020*, Data Management Technical Note DMTN-150, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-150.lsst.io/>

- [1219] **[DMTN-092]**, Lim, K.T., 2021, *Alert Production Pipeline Interfaces*, Data Management Technical Note DMTN-092, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-092.lsst.io/>
- [1220] **[DMTN-189]**, Lim, K.T., 2021, *Data Facility Specifications*, Data Management Technical Note DMTN-189, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-189.lsst.io/>
- [1221] **[DMTN-143]**, Lim, K.T., 2022, *Image Capture Simplification*, Data Management Technical Note DMTN-143, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-143.lsst.io/>
- [1222] **[DMTN-218]**, Lim, K.T., 2022, *The LSST Science Pipelines Build System*, Data Management Technical Note DMTN-218, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-218.lsst.io/>
- [1223] **[RTN-036]**, Lim, K.T., 2022, *Software Distribution at Data Facilities*, Technical Note RTN-036, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-036.lsst.io/>
- [1224] **[DMTN-181]**, Lim, K.T., 2023, *Campaign Management*, Data Management Technical Note DMTN-181, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-181.lsst.io/>
- [1225] **[DMTN-188]**, Lim, K.T., 2023, *IVOA Universal Worker Service: Roles and Implementation*, Data Management Technical Note DMTN-188, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-188.lsst.io/>
- [1226] **[DMTN-198]**, Lim, K.T., 2023, *Data Backbone Implementation*, Data Management Technical Note DMTN-198, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-198.lsst.io/>
- [1227] **[DMTN-213]**, Lim, K.T., 2023, *Multi-Site Data Release Processing Using PanDA and Rucio*, Data Management Technical Note DMTN-213, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-213.lsst.io/>
- [1228] **[DMTN-219]**, Lim, K.T., 2023, *Proposal and Prototype for Prompt Processing*, Data Management Technical Note DMTN-219, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-219.lsst.io/>, doi:10.71929/rubin/2585429
- [1229] **[DMTN-254]**, Lim, K.T., 2023, *Summit Architecture from the DM Perspective*, Data Management Technical Note DMTN-254, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-254.lsst.io/>

- [1230] **[DMTN-255]**, Lim, K.T., 2023, *Proposal for Implementing FAFF Rapid Analysis*, Data Management Technical Note DMTN-255, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-255.lsst.io/>
- [1231] **[DMTN-284]**, Lim, K.T., 2024, *Signed URLs for Data Releases at the USDF*, Data Management Technical Note DMTN-284, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-284.lsst.io/>
- [1232] **[DMTN-227]**, Lim, K.T., 2025, *The Consolidated Database of Image Metadata*, Data Management Technical Note DMTN-227, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-227.lsst.io/>, doi:10.71929/rubin/2586436
- [1233] **[Document-32503]**, Lim, K.T., Committee, R., 2019, *Identity Management Review Report*, Informal Construction Document Document-32503, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-32503>
- [1234] **[LDM-146]**, Lim, K.T., Allsman, R., Kantor, J., 2013, *Data Management Middleware UML Use Case and Activity Model*, Data Management Controlled Document LDM-146, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-146>
- [1235] **[LDM-140]**, Lim, K.T., Smith, C., Axelrod, T., Dubois-Felsmann, G., Freemon, M., 2013, *Data Management Compute Sizing Explanation*, Data Management Controlled Document LDM-140, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-140>
- [1236] **[LDM-152]**, Lim, K.T., Dubois-Felsmann, G., Johnson, M., Juric, M., Petravick, D., 2019, *Data Management Middleware Design*, Data Management Controlled Document LDM-152, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-152.lsst.io/>
- [1237] **[DMTN-114]**, Lim, K.T., Guy, L., Chiang, H.F., 2019, *LSST + Amazon Web Services Proof of Concept*, Data Management Technical Note DMTN-114, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-114.lsst.io/>
- [1238] **[LDM-148]**, Lim, K.T., Bosch, J., Dubois-Felsmann, G., et al., 2020, *Data Management System Design*, Data Management Controlled Document LDM-148, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-148.lsst.io/>, doi:10.71929/rubin/2587850
- [1239] Lindegren, L., 1976, *A three-step procedure for deriving positions, proper motions, and parallaxes of stars observed by scanning great circles*, Tech. rep., Lund Observatory, Lund Observatory Technical note
- [1240] Lindegren, L., 1978, In: Prochazka, F.V., Tucker, R.H. (eds.) IAU Colloquium 48: Modern Astrometry, 197, ADS Link

- [1241] Lindegren, L., 1983, *Pseudosolution and pseudocovariances of least-squares problems with known null space*, Tech. rep., Lund Observatory, NDAC/LO/018, Hipparcos NDAC
- [1242] Lindegren, L., 1995, *A&A*, 304, 61, [ADS Link](#)
- [1243] Lindegren, L., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special Publication, 29, [ADS Link](#)
- [1244] Lindegren, L., 2010, *ISSI Scientific Reports Series*, 9, 279, [ADS Link](#)
- [1245] Lindegren, L., 2010, In: Klioner, S.A., Seidelmann, P.K., Soffel, M.H. (eds.) *Relativity in Fundamental Astronomy: Dynamics, Reference Frames, and Data Analysis*, vol. 261 of IAU Symposium, 296–305, doi:10.1017/S1743921309990548, [ADS Link](#)
- [1246] Lindegren, L., et al, M.P., 1993, *GAIA: Global Astrometric Interferometer for Astrophysics*, Tech. rep., Lund, URL http://www.astro.lu.se/%7EElennart/Astrometry/gaia_proposal.PDF
- [1247] Lindegren, L., Bastian, U., 2010, In: Turon, C., Meynadier, F., Arenou, F. (eds.) *EAS Publications Series*, vol. 45 of EAS Publications Series, 109–114, doi:10.1051/eas/1045018, [ADS Link](#)
- [1248] Lindegren, L., Perryman, M.A.C., 1994, *A Small Interferometer in Space for Global Astrometry: the Gaia Concept*, Tech. rep., Lund Observatory, IAU Symp. No 166, *Astronomical and Astrophysical Objectives of sub-milliarcsecond Optical Astronomy*, The Hague, 15–19 August 1994
- [1249] Lindegren, L., Perryman, M.A.C., 1994, *GAIA: Global Astrometric Interferometer for Astrophysics*, Tech. rep., Lund Observatory, Supplementary Information Submitted to the Horizon2000+ Survey Committee
- [1250] Lindegren, L., Perryman, M.A.C., Bastian, U., et al., 1993, *GAIA: Global Astrometric Interferometer for Astrophysics*, Tech. rep., Lund Observatory, Response to Call for Mission Concepts for Horizon 2000 Follow UP: Proposal for an astrometric interferometer as an ESA Cornerstone Mission
- [1251] Lindegren, L., Perryman, M.A.C., Bastian, U., et al., 1994, *GAIA: Global Astrometric Interferometer for Astrophysics*, Tech. rep., Lund Observatory, Proc. of *Astronomical Telescopes and Instrumentation for the 21st Century*. Technical Conference 2200, SPIE Symposium in Kona, 13–18 March 1994

- [1252] Lindegren, L., Lammers, U., Hobbs, D., et al., 2012, *A&A*, 538, A78 (arXiv:1112.4139), doi:10.1051/0004-6361/201117905, ADS Link
- [1253] Lindegren, L., Lammers, U., Hobbs, D., et al., 2012, *A&A*, 538, A78 (arXiv:1112.4139), doi:10.1051/0004-6361/201117905, ADS Link
- [1254] ter Linden, M., de Wolf, H., Grim, R., 2005, In: 2005 International Conference on Parallel Processing Workshops (ICPPW'05), vol. icppw, 5–10, IEEE Computer Society, doi:10.1109/ICPPW.2005.37
- [1255] LINPACK, URL <http://www.top500.org/lists/linpack.php>, Linpack standard numerical benchmark
- [1256] Lock, D., 2000, *Project Phasing and Planning*, Gower, 7 edn.
- [1257] **[LPM-98]**, Long, K.E., 2016, *LSST Project Controls System Description*, Project Controlled Document LPM-98, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-98>
- [1258] **[PSTN-037]**, Lopez, M., 2020, *Installation and Performance of the LSST Camera Refrigeration System*, Project Science Technical Note PSTN-037, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-037.lsst.io/>
- [1259] López, P.P., Luri, X., Serraller, I., 2003, *Java Code Conventions*, Tech. rep., GMV/UB, GMV-GDAAS2-SCG-004
- [1260] **[LSE-209]**, Lotz, P., 2016, *Software Component to OCS Interface*, Systems Engineering Controlled Document LSE-209, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-209>
- [1261] **[LSE-70]**, Lotz, P., 2016, *System Communication Protocol Interface*, Systems Engineering Controlled Document LSE-70, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-70>
- [1262] Lotz, P.J., Dubois-Felsmann, G.P., Lim, K.T., et al., 2016, In: Chiozzi, G., Guzman, J.C. (eds.) *Software and Cyberinfrastructure for Astronomy IV*, vol. 9913 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 991309, doi:10.1117/12.2231796, ADS Link
- [1263] **[Agreement-51]**, LSST, 2015, *Memorandum of Agreement regarding collaboration in the scientific exploitation of data acquired with LSST by specified Principal Investigators and scientists at IN2P3*, Formal Construction Agreement Agreement-51, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Agreement-51>

- [1264] **[SITCOMTN-148]**, LSST Camera Team, Antilogus, P., Astier, P., et al., 2025, *LSST Camera Electro-Optical Test (Run 7) Results*, Commissioning Technical Note SITCOMTN-148, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-148.lsst.io/>, doi:10.71929/rubin/2583999
- [1265] **[CTN-007]**, LSST Camera Team, Antilogus, P., Banovetz, J., et al., 2026, *The LSST Camera commissioning*, Camera Technical Note CTN-007, NSF-DOE Vera C. Rubin Observatory, URL <https://ctn-007.lsst.io/>
- [1266] LSST Dark Energy Science Collaboration (LSST DESC), Abolfathi, B., Alonso, D., et al., 2021, *ApJS*, 253, 31 (arXiv:2010.05926), doi:10.3847/1538-4365/abd62c, ADS Link
- [1267] LSST Data Management, LSST DM Developer Guide, URL <https://developer.lsst.io/>
- [1268] **[Report-241]**, LSST Project Science Team, 2015, *Camera Mixed Focal Plane Option*, Construction Report Report-241, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Report-241>
- [1269] **[Document-32816]**, LSST Science Advisory Committee, 2019, *Recommendations for Operations Simulator Experiments Based on Submitted Cadence Optimization White Papers*, Informal Construction Document Document-32816, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-32816>
- [1270] LSST Science Collaboration, Abell, P.A., Allison, J., et al., 2009, arXiv e-prints, arXiv:0912.0201 (arXiv:0912.0201), doi:10.48550/arXiv.0912.0201, ADS Link
- [1271] LSST Science Collaboration, Abell, P.A., Allison, J., et al., 2009, arXiv e-prints, arXiv:0912.0201 (arXiv:0912.0201), doi:10.48550/arXiv.0912.0201, ADS Link
- [1272] LSST Science Collaboration, Marshall, P., Anguita, T., et al., 2017, arXiv e-prints, arXiv:1708.04058 (arXiv:1708.04058), doi:10.48550/arXiv.1708.04058, ADS Link
- [1273] **[Document-30641]**, LSST Science Community, 2018, *2018 Cadence White Paper Submissions*, Informal Construction Document Document-30641, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-30641>
- [1274] **[Document-37579]**, LSST Science Community, 2021, *2021 Cadence Notes Submissions*, Informal Construction Document Document-37589, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-37579>

- [1275] **[Document-11624]**, LSST Science Council, 2011, *Optimization of LSST Deployment Parameters*, Informal Construction Document Document-11624, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-11624>
- [1276] **[Document-16168]**, LSST Systems Engineering, 2014, *LSST Key System Parameters Summary*, Informal Construction Document Document-16168, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-16168>
- [1277] **[Document-9553]**, LSST Systems Engineering Team, 2011, *LSST Photometric Calibration Functional Error Budgets*, Informal Construction Document Document-9553, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-9553>
- [1278] **[SITCOMTN-006]**, Lupton, R., 2021, *Integration Milestones*, Commissioning Technical Note SITCOMTN-006, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-006.lsst.io/>
- [1279] **[ITTN-063]**, Lupton, R., 2022, *Moving the Commissioning Cluster to Cerro Pachón*, Information Technology Technical Note ITTN-063, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-063.lsst.io/>
- [1280] **[SITCOMTN-032]**, Lupton, R., 2022, *Visits, snaps, seqNums, and exposureIDs*, Commissioning Technical Note SITCOMTN-032, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-032.lsst.io/>
- [1281] **[SITCOMTN-054]**, Lupton, R., 2023, *ComCam support on Base Test Stand*, Commissioning Technical Note SITCOMTN-054, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-054.lsst.io/>
- [1282] Lupton, R., Blanton, M.R., Fekete, G., et al., 2004, PASP, 116, 133 (arXiv:astro-ph/0312483), doi:10.1086/382245, ADS Link
- [1283] **[DMTN-101]**, Lupton, R.H., Plazas Malagón, A.A., Waters, C.Z., 2025, *Verifying LSST Calibration Data Products*, Data Management Technical Note DMTN-101, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-101.lsst.io/>, doi:10.71929/rubin/2586569
- [1284] Luri, X., Palmer, M., Arenou, F., et al., 2014, A&A, 566, A119 (arXiv:1404.5861), doi:10.1051/0004-6361/201423636, ADS Link
- [1285] **[DMTN-323]**, Lust, N.B., 2025, *Color Composite Image Creation with the LSST Science Pipelines*, Data Management Technical Note DMTN-323, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-323.lsst.io/>

- [1286] **[DMTN-241]**, Lust, N.B., Jenness, T., Bosch, J.F., et al., 2022, *Data management and execution systems for the Rubin Observatory Science Pipelines*, Data Management Technical Note DMTN-241, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-241.lsst.io/>
- [1287] Lust, N.B., Jenness, T., Bosch, J.F., et al., 2023, arXiv e-prints, arXiv:2303.03313 (arXiv:2303.03313), doi:10.48550/arXiv.2303.03313, ADS Link
- [1288] **[Document-10963]**, Ma, Z., et al., 2011, *Science White Paper for LSST Deep-Drilling Field Observations: Using LSST Deep Drilling Fields to Improve Weak Lensing Measurements*, Informal Construction Document Document-10963, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-10963>
- [1289] **[RTN-098]**, MacBride, S.P., 2025, *Target-of-Opportunity Operations During the Science Verification Surveys*, Technical Note RTN-098, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-098.lsst.io/>, doi:10.71929/rubin/3010894
- [1290] **[RTN-107]**, MacBride, S.P., 2025, *The Rubin Observatory Target-of-Opportunity Mock Data Challenge*, Technical Note RTN-107, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-107.lsst.io/>, doi:10.71929/rubin/3010871
- [1291] **[DMTN-298]**, Mainetti, G., Hernandez, F., 2024, *Using UKDF Qserv instance as FrDF Rubin Science Platform TAP service backend*, Data Management Technical Note DMTN-298, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-298.lsst.io/>
- [1292] Mainetti, G., Hernandez, F., Jammes, F., Le Boulc'h, Q., 2024, arXiv e-prints, arXiv:2403.19321 (arXiv:2403.19321), doi:10.48550/arXiv.2403.19321, ADS Link
- [1293] **[DMTN-304]**, Mainetti, G., Hernandez, F., Le Boulc'h, Q., Boutigny, D., 2024, *Processing DP0.2 at FrDF: A comparison with DP0.2 catalogs produced at IDF*, Data Management Technical Note DMTN-304, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-304.lsst.io/>
- [1294] **[DMTN-334]**, Mainetti, G., Hernandez, F., Le Boulc'h, Q., 2026, *Characterizing Memory Requirements for Large-Scale LSSTCam Productions at FrDF*, Data Management Technical Note DMTN-334, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-334.lsst.io/>
- [1295] Makarov, V.V., 1998, A&A, 340, 309, ADS Link
- [1296] Mandelbaum, R., Hirata, C.M., Seljak, U., et al., 2005, MNRAS, 361, 1287 (arXiv:astro-ph/0501201), doi:10.1111/j.1365-2966.2005.09282.x, ADS Link
- [1297] Mandelbaum, R., Jarvis, M., Lupton, R.H., et al., 2023, The Open Journal of Astrophysics, 6, 5 (arXiv:2209.09253), doi:10.21105/astro.2209.09253, ADS Link

- [1298] Mangum, J.G., Wallace, P., 2015, *PASP*, 127, 74 (arXiv:1411.1617), doi:10.1086/679582, ADS Link
- [1299] **[RTN-033]**, Margheim, S., Verma, A., Marshall, P., 2023, *The In-Kind Helpdesk System*, Technical Note RTN-033, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-033.lsst.io/>
- [1300] MariaDB, MariaDB – Enterprise Open Source Database & Data Warehouse, URL <https://mariadb.com/>
- [1301] **[RDO-011]**, Marshall, P., 2020, *Release Scenarios for LSST Data*, Data Management Operations Controlled Document RDO-011, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/RDO-011>
- [1302] **[RTN-034]**, Marshall, P., 2023, *Planning Tools for Rubin Operations*, Technical Note RTN-034, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-034.lsst.io/>
- [1303] **[RTN-040]**, Marshall, P., 2023, *The Rubin Resource Forum Charter*, Technical Note RTN-040, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-040.lsst.io/>
- [1304] **[ACP]**, Marshall, P., 2024, *Access Control Plan for the Vera C. Rubin Observatory U.S. Data Facility Embargo Rack*, Tech. Rep. ACP, SLAC, URL <https://ls.st/ACP>, Internal document
- [1305] **[RTN-035]**, Marshall, P., et al., 2023, *The Rubin Operations Center at SLAC*, Technical Note RTN-035, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-035.lsst.io/>
- [1306] **[PSTN-030]**, Mason, B., 2020, *LSST Education and Public Outreach: Infrastructure Overview*, Project Science Technical Note PSTN-030, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-030.lsst.io/>
- [1307] Matheson, T., Stubens, C., Wolf, N., et al., 2021, *AJ*, 161, 107 (arXiv:2011.12385), doi:10.3847/1538-3881/abd703, ADS Link
- [1308] **[ITTN-022]**, Maulen, G., 2020, *Summit Building Fiber/Copper Deployment*, Information Technology Technical Note ITTN-022, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-022.lsst.io/>
- [1309] **[ITTN-024]**, Maulen, G., 2020, *Summit Outside of Building Fiber/Copper Deployment*, Information Technology Technical Note ITTN-024, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-024.lsst.io/>

- [1310] **[ITTN-025]**, Maulen, G., 2020, *La Serena Building Fiber/Copper Deployment*, Information Technology Technical Note ITTN-025, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-025.lsst.io/>
- [1311] **[ITTN-026]**, Maulen, G., 2020, *La Serena Datacenter Fiber/Copper Deployment*, Information Technology Technical Note ITTN-026, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-026.lsst.io/>
- [1312] **[ITTN-034]**, Maulen, G., 2020, *Summit base link*, Information Technology Technical Note ITTN-034, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-034.lsst.io/>
- [1313] **[ITTN-046]**, Maulen, G., 2021, *Cameras Fibers*, Information Technology Technical Note ITTN-046, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-046.lsst.io/>
- [1314] **[ITTN-047]**, Maulen, G., Constanzo, J., Stockebrand, H., 2021, *Third Floor Network Planning*, Information Technology Technical Note ITTN-047, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-047.lsst.io/>
- [1315] **[DMTN-308]**, McCormick, J., 2025, *Database Platform Comparison for the Prompt Products Database (PPDB)*, Data Management Technical Note DMTN-308, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-308.lsst.io/>
- [1316] **[DMTN-317]**, McCormick, J., 2025, *Technical Design for the Prompt Products Database (PPDB)*, Data Management Technical Note DMTN-317, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-317.lsst.io/>
- [1317] **[DMTN-301]**, McCormick, J., Dubois-Felsmann, G.P., Salnikov, A., et al., 2024, *Using Felis to Represent the Semantics and Metadata of Astronomical Data Catalogs*, Data Management Technical Note DMTN-301, Vera C. Rubin Observatory, URL <https://dmtn-301.lsst.io/>
- [1318] McDowell, J., 2004, In: Quinn, P.J., Górski, K.M. (eds.) *Toward an International Virtual Observatory*, 101, doi:10.1007/10857598_15, ADS Link
- [1319] **[LPM-51]**, McKercher, R., 2013, *Document Management Plan*, Project Controlled Document LPM-51, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-51>
- [1320] **[LPM-43]**, McKercher, R., 2016, *WBS Structure*, Project Controlled Document LPM-43, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-43>
- [1321] **[LPM-44]**, McKercher, R., 2016, *WBS Dictionary*, Project Controlled Document LPM-44, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-44>

- [1322] **[SITCOMTN-078]**, Megias Homar, G., 2023, *Iterative improvement of LUT through balance forces*, Commissioning Technical Note SITCOMTN-078, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-078.lsst.io/>
- [1323] **[SITCOMTN-089]**, Megias Homar, G., 2023, *Laser Tracker Offsets Analysis*, Commissioning Technical Note SITCOMTN-089, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-089.lsst.io/>
- [1324] **[SITCOMTN-079]**, Megias Homar, G., 2024, *Iterative improvement of LUT through balance forces*, Commissioning Technical Note SITCOMTN-079, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-079.lsst.io/>
- [1325] **[SITCOMTN-104]**, Megias Homar, G., 2024, *WET-001 - Optical State Measurement Verification Test*, Commissioning Technical Note SITCOMTN-104, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-104.lsst.io/>
- [1326] **[SITCOMTN-113]**, Megias Homar, G., 2024, *WET-007 - Comparison CWFS versus Other Approaches*, Commissioning Technical Note SITCOMTN-113, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-113.lsst.io/>
- [1327] **[SITCOMTN-114]**, Megias Homar, G., 2024, *AOS On-Sky Commissioning Tests Index*, Commissioning Technical Note SITCOMTN-114, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-114.lsst.io/>
- [1328] **[SITCOMTN-115]**, Megias Homar, G., 2024, *Control Loop Gains Test (CLT-002)*, Commissioning Technical Note SITCOMTN-115, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-115.lsst.io/>
- [1329] **[SITCOMTN-116]**, Megias Homar, G., 2024, *Look-Up Table Rotator Dependence Test (LUTT-005)*, Commissioning Technical Note SITCOMTN-116, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-116.lsst.io/>
- [1330] **[SITCOMTN-122]**, Megias Homar, G., 2024, *Laser Tracker Alignment System*, Commissioning Technical Note SITCOMTN-122, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-122.lsst.io/>
- [1331] **[SITCOMTN-129]**, Megias Homar, G., 2024, *Notes on Optical Feedback Controller*, Commissioning Technical Note SITCOMTN-129, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-129.lsst.io/>
- [1332] Megias Homar, G., Kahn, S.M., Meyers, J.M., Crenshaw, J.F., Thomas, S.J., 2024, ApJ, 974, 108 (arXiv:2406.04656), doi:10.3847/1538-4357/ad6cdc, ADS Link

- [1333] Megias Homar, G., Meyers, J.M., Thomas, S.J., et al., 2024, In: Marshall, H.K., Spyromilio, J., Usuda, T. (eds.) Ground-based and Airborne Telescopes X, vol. 13094 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 130943N, doi:10.1117/12.3019361, ADS Link
- [1334] Megias Homar, G., Tighe, R., Thomas, S., et al., 2024, In: Marshall, H.K., Spyromilio, J., Usuda, T. (eds.) Ground-based and Airborne Telescopes X, vol. 13094 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 130943C, doi:10.1117/12.3019031, ADS Link
- [1335] Melchior, P., Moolekamp, F., Jerdee, M., et al., 2018, *Astronomy and Computing*, 24, 129 (arXiv:1802.10157), doi:10.1016/j.ascom.2018.07.001, ADS Link
- [1336] Melnik, S., Gubarev, A., Long, J.J., et al., 2010, *Proc. VLDB Endow.*, 3, 330, doi:10.14778/1920841.1920886
- [1337] **[DMTN-058]**, Menanteau, F., 2017, *Design Concepts for the DM Header Service*, Data Management Technical Note DMTN-058, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-058.lsst.io/>
- [1338] Merson, A.I., Baugh, C.M., Helly, J.C., et al., 2013, *MNRAS*, 429, 556 (arXiv:1206.4049), doi:10.1093/mnras/sts355, ADS Link
- [1339] **[DMTN-064]**, Meyers, J., 2018, *Hyper Suprime-Cam donut analysis*, Data Management Technical Note DMTN-064, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-064.lsst.io/>
- [1340] **[SMTN-019]**, Meyers, J., 2024, *On-sky and hardware rotation angles.*, Simulations Team Technical Note SMTN-019, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-019.lsst.io/>
- [1341] **[SCTR-113]**, Meyers, J., 2025, *System-level Science Verification Acceptance Test Campaign: Delivered Image Quality and PSF Modeling Test Plan and Report*, Commissioning Technical Report SCTR-113, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-113.lsst.io/>
- [1342] **[SITCOMTN-178]**, Meyers, J.E., 2026, *The LSSTCam Sensitivity Matrix*, Commissioning Technical Note SITCOMTN-178, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-178.lsst.io/>
- [1343] Meyers, J.E., Burchat, P.R., 2015, *ApJ*, 807, 182 (arXiv:1409.6273), doi:10.1088/0004-637X/807/2/182, ADS Link

- [1344] Michalik, D., Lindegren, L., Hobbs, D., Lammers, U., Yamada, Y., 2012, In: Ballester, P., Egret, D., Lorente, N.P.F. (eds.) *Astronomical Data Analysis Software and Systems XXI*, vol. 461 of *Astronomical Society of the Pacific Conference Series*, 549 (arXiv:1201.2849), doi:10.48550/arXiv.1201.2849, ADS Link
- [1345] Michalik, D., Lindegren, L., Hobbs, D., Lammers, U., Yamada, Y., 2013, In: de Grijs, R. (ed.) *Advancing the Physics of Cosmic Distances*, vol. 289 of *IAU Symposium*, 414–417 (arXiv:1407.4270), doi:10.1017/S1743921312021849, ADS Link
- [1346] Michalik, D., Lindegren, L., Hobbs, D., Lammers, U., 2014, *A&A*, 571, A85 (arXiv:1407.4025), doi:10.1051/0004-6361/201424606, ADS Link
- [1347] Michalik, D., Lindegren, L., Hobbs, D., 2015, *A&A*, 574, A115 (arXiv:1412.8770), doi:10.1051/0004-6361/201425310, ADS Link
- [1348] Michalik, D., Lindegren, L., Hobbs, D., Butkevich, A.G., 2015, *A&A*, 583, A68 (arXiv:1507.02963), doi:10.1051/0004-6361/201526936, ADS Link
- [1349] Microsoft, Microsoft – SQL Server 2016, URL <https://www.microsoft.com/en-us/sql-server/sql-server-2016>
- [1350] Microsystems, S., 1999, *Code Conventions for the Java Programming Language*, Tech. rep., Sun, <http://java.sun.com/docs/codeconv>
- [1351] Microsystems, S., 1999, *Java Look and Feel Design Guidelines*, Tech. rep., Sun, <http://java.sun.com/products/jlf/dg/index.htm>
- [1352] Microsystems, S., 2000, *How to write Doc Comments for JavaDoc*, Tech. rep., Sun, <http://java.sun.com/products/jdk/javadoc/writingdoccomments/index.html>
- [1353] Mignard, F., 2000, *A&A*, 354, 522, ADS Link
- [1354] Mignard, F., 2001, *A practical scanning law for GAIA simulations*, Tech. rep., CERGA, GAIA-FM-010
- [1355] Mignard, F., 2002, In: Bienayme, O., Turon, C. (eds.) *EAS Publications Series*, vol. 2 of *EAS Publications Series*, 107–121, doi:10.1051/eas:2002009, ADS Link
- [1356] Mignard, F., 2002, *Considerations on the orbit of Gaia for simulations*, Tech. rep., Observatoire de la Côte D'Azur/CERGA, GAIA-FM-011

- [1357] Mignard, F., 2004,
Observatoire de la Côte D'Azur/CERGA, private communication
- [1358] Mignard, F., 2005, In: Turon, C., O'Flaherty, K.S., Perryman, M.A.C. (eds.) The Three-Dimensional Universe with Gaia, vol. 576 of ESA Special Publication, 5, ADS Link
- [1359] Mignard, F., Klioner, S., 2012, A&A, 547, A59 (arXiv:1207.0025), doi:10.1051/0004-6361/201219927, ADS Link
- [1360] Milani, A., Gronchi, G.F., Farnocchia, D., et al., 2008, Icarus, 195, 474, doi:10.1016/j.icarus.2007.11.033, ADS Link
- [1361] Miller, W.W., III, Sontag, C., Rose, J.F., 2003, In: Payne, H.E., Jedrzejewski, R.I., Hook, R.N. (eds.) Astronomical Data Analysis Software and Systems XII, vol. 295 of Astronomical Society of the Pacific Conference Series, 261, ADS Link
- [1362] **[LTS-210]**, Mills, D., 2015, *Engineering and Facility Database Design Document*, Telescope & Site Controlled Document LTS-210, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LTS-210>
- [1363] Mills, D., Schumacher, G., 2010, In: Radziwill, N.M., Bridger, A. (eds.) Software and Cyberinfrastructure for Astronomy, vol. 7740 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 77402C, doi:10.1117/12.857233, ADS Link
- [1364] Mills, D., Schumacher, G., Lotz, P., 2016, In: Hall, H.J., Gilmozzi, R., Marshall, H.K. (eds.) Ground-based and Airborne Telescopes VI, vol. 9906 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 99065C, doi:10.1117/12.2233099, ADS Link
- [1365] Mohammadi, M., Bazhurov, T., 2017, arXiv e-prints, arXiv:1702.02968 (arXiv:1702.02968), doi:10.48550/arXiv.1702.02968, ADS Link
- [1366] Möller, A., Peloton, J., Ishida, E.E.O., et al., 2021, MNRAS, 501, 3272 (arXiv:2009.10185), doi:10.1093/mnras/staa3602, ADS Link
- [1367] Momcheva, I., Smith, A.M., Fox, M., 2019, In: American Astronomical Society Meeting Abstracts #233, vol. 233 of American Astronomical Society Meeting Abstracts, 457.06, ADS Link
- [1368] Monash, C., 2009, eBay's two enormous data warehouses, URL <http://www.dbms2.com/2009/04/30/ebays-two-enormous-data-warehouses/>
- [1369] Monash, C., 2009, Teradata and Netezza are doing MapReduce too, URL <http://www.dbms2.com/2009/09/03/teradata-and-netezza-are-doing-mapreduce-too/>

- [1370] Monash, C., 2010, eBay followup — Greenplum out, Teradata > 10 petabytes, Hadoop has some value, and more, URL <http://www.dbms2.com/2010/10/06/ebay-followup-greenplum-out-teradata-10-petabytes-hadoop-has-some-value-and-more/>
- [1371] **[TSTN-006]**, Mondrik, N., Ingraham, P., Brownsburger, S., 2019, *LSST Atmospheric Transmission and Slitless Spectrograph (LATISS) Instrument Handbook*, Telescope and Site Technical Note TSTN-006, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-006.lsst.io/>
- [1372] Mondrik, N., Coughlin, M., Betoule, M., et al., 2023, PASP, 135, 035001 (arXiv:2302.11397), doi:10.1088/1538-3873/acbe1c, ADS Link
- [1373] Moniez, M., 2003, A&A, 412, 105 (arXiv:astro-ph/0302460), doi:10.1051/0004-6361:20031478, ADS Link
- [1374] **[DMTN-194]**, Moolekamp, F., 2023, *The current state of scarlet and looking toward the future*, Data Management Technical Note DMTN-194, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-194.lsst.io/>
- [1375] **[DMTN-026]**, Moolekamp, F., Schellart, P., 2017, *Pybind11 wrapping step-by-step*, Data Management Technical Note DMTN-026, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-026.lsst.io/>
- [1376] Moore, G.E., 1965, Electronics, 38, 114
- [1377] Mora, A., Vosteen, A., 2012, In: Clampin, M.C., Fazio, G.G., MacEwen, H.A., Oschmann, J.M., Jr. (eds.) Space Telescopes and Instrumentation 2012: Optical, Infrared, and Millimeter Wave, vol. 8442 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 84421Q (arXiv:1207.2087), doi:10.1117/12.926313, ADS Link
- [1378] Mora, A., Biermann, M., Brown, A.G.A., et al., 2014, In: Oschmann, J.M., Jr., Clampin, M., Fazio, G.G., MacEwen, H.A. (eds.) Space Telescopes and Instrumentation 2014: Optical, Infrared, and Millimeter Wave, vol. 9143 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 91430X (arXiv:1407.3729), doi:10.1117/12.2054602, ADS Link
- [1379] Moreau, L., Clifford, B., Freire, J., et al., 2011, Future Generation Computer Systems, 27, 743, URL <https://eprints.soton.ac.uk/271449/>
- [1380] Moreno, F., Molina, A., Ortiz, J.L., 1997, A&A, 327, 1253, ADS Link

- [1381] Morris, K., 2021, *Infrastructure as Code: Dynamic Systems for the Cloud Age*, O'Reilly Media, Sebastopol, CA, 2 edn., URL <https://www.oreilly.com/library/view/infrastructure-as-code/9781098114664/>, eISBN: 9781098114664
- [1382] **[DMTN-031]**, Morrison, C.B., 2018, *Pessimistic Pattern Matching for LSST*, Data Management Technical Note DMTN-031, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-031.lsst.io/>, doi:10.71929/rubin/2586578
- [1383] MPI, MPI Documents, URL <http://mpi-forum.org/docs/>
- [1384] MPI4PY, MPI for Python, URL <http://mpi4py.readthedocs.io/en/stable/>
- [1385] **[DMTR-71]**, Mueller, F., 2019, *LW-P46 (2018 Qserv Large Scale Testing) Test Plan and Report*, Data Management Test Report DMTR-71, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-71.lsst.io/>
- [1386] **[LDM-552]**, Mueller, F., 2019, *Distributed Database Software Test Specification*, Data Management Controlled Document LDM-552, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-552.lsst.io/>
- [1387] **[TSTN-047]**, Mueller, F., 2025, *Operator Control of Rubin Observatory NVR Camera Infrared Illuminators*, Telescope and Site Technical Note TSTN-047, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-047.lsst.io/>
- [1388] **[DMTN-243]**, Mueller, F., Gaponenko, I., Gates, J., et al., 2022, *Qserv: A Distributed Petascale Database for the LSST Catalogs*, Data Management Technical Note DMTN-243, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-243.lsst.io/>
- [1389] Mueller, F., Gaponenko, I., Gates, J., et al., 2025, In: Gaudet, S., Bohlender, D., Gwyn, S., Hincks, A., Teuben, P. (eds.) *Astronomical Data Analysis Software and Systems XXXII*, vol. 538 of *Astronomical Society of the Pacific Conference Series*, 114, doi:10.26624/XCPI7375, ADS Link
- [1390] Muinonen, K., Belskaya, I.N., Cellino, A., et al., 2010, *Icarus*, 209, 542, doi:10.1016/j.icarus.2010.04.003, ADS Link
- [1391] Munari, U., 2000, In: Porceddu, I., Aiello, S. (eds.) *Molecules in Space and in the Laboratory*, vol. 67, 179 (arXiv:astro-ph/0010271), doi:10.48550/arXiv.astro-ph/0010271, ADS Link
- [1392] Munari, U., Tomasella, L., 1999, *A&AS*, 137, 521, doi:10.1051/aas:1999490, ADS Link

- [1393] **[LDM-156]**, Myers, J., Jones, L., Axelrod, T., 2013, *Moving Object Pipeline System Design*, Data Management Controlled Document LDM-156, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-156>
- [1394] Myers, J.A., Tatineni, M., Sinkovits, R.S., 2011, In: Proceedings of the 2011 TeraGrid Conference: Extreme Digital Discovery, TG'11, 8:1–8:4, ACM, New York, NY, USA, URL <http://doi.acm.org/10.1145/2016741.2016750>, doi:10.1145/2016741.2016750
- [1395] Naghib, E., Yoachim, P., Vanderbei, R.J., Connolly, A.J., Jones, R.L., 2019, AJ, 157, 151 (arXiv:1810.04815), doi:10.3847/1538-3881/aafece, ADS Link
- [1396] Naghib, E., Yoachim, P., Vanderbei, R.J., Connolly, A.J., Jones, R.L., 2019, AJ, 157, 151 (arXiv:1810.04815), doi:10.3847/1538-3881/aafece, ADS Link
- [1397] Narayan, G., Snodgrass, R., Keceioglu, J., et al., 2015, In: IAU General Assembly, vol. 29, 2258269, ADS Link
- [1398] Narayan, G., Axelrod, T., Holberg, J.B., et al., 2016, ApJ, 822, 67 (arXiv:1603.03825), doi:10.3847/0004-637X/822/2/67, ADS Link
- [1399] NASA/Science Office of Standards and Technology, 1995, *Definition of the Flexible Image Transport System (FITS)*, Tech. Rep. NOST 100-1.1, NASA/NOST
- [1400] National Academies of Sciences, Engineering, and Medicine, 2016, *Future Directions for NSF Advanced Computing Infrastructure to Support U.S. Science and Engineering in 2017–2020*, The National Academies Press, Washington, DC, doi:10.17226/21886
- [1401] National Research Council, 2001, *Astronomy and Astrophysics in the New Millennium*, The National Academies Press, Washington, DC, URL <https://www.nap.edu/catalog/9839/astronomy-and-astrophysics-in-the-new-millennium>, doi:10.17226/9839
- [1402] National Research Council, 2003, *Connecting Quarks with the Cosmos: Eleven Science Questions for the New Century*, The National Academies Press, Washington, DC, URL <https://www.nap.edu/catalog/10079/connecting-quarks-with-the-cosmos-eleven-science-questions-for-the>, doi:10.17226/10079
- [1403] National Research Council, 2003, *New Frontiers in the Solar System: An Integrated Exploration Strategy*, The National Academies Press, Washington, DC, URL <https://www.nap.edu/catalog/10432/new-frontiers-in-the-solar-system-an-integrated-exploration-strategy>, doi:10.17226/10432

- [1404] National Research Council, 2011, *Panel Reports—New Worlds, New Horizons in Astronomy and Astrophysics*, The National Academies Press, Washington, DC, URL <https://www.nap.edu/catalog/12982/panel-reports-new-worlds-new-horizons-in-astronomy-and-astrophysics>, doi:10.17226/12982
- [1405] **[LTS-206]**, Neill, D., Sebag, J., Gressler, W., 2017, *Hexapods and Rotator Specifications Document*, Telescope & Site Controlled Document LTS-206, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LTS-206>
- [1406] **[RTN-037]**, Neilsen, E., 2022, *Architecture for Scheduler and Observing Progress Monitoring Software*, Technical Note RTN-037, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-037.lsst.io/>
- [1407] **[RTN-022]**, Neilsen, E., 2023, *Seeing values for LSST strategy simulations*, Technical Note RTN-022, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-022.lsst.io/>
- [1408] **[RTN-016]**, Neilsen, E., Jones, L., 2024, *Background and concepts for monitoring survey progress and scheduler performance*, Technical Note RTN-016, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-016.lsst.io/>
- [1409] **[RTN-012]**, Neilsen, E., Jones, L., Yoachim, P., 2020, *Approximating Pre-calculated Sky Brightness with Zernike Coefficients*, Technical Note RTN-012, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-012.lsst.io/>
- [1410] **[RTN-014]**, Neilsen, E., Jones, L., Yoachim, P., 2021, *Lunar Complications in the Scheduling of Deep Drilling Fields*, Technical Note RTN-014, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-014.lsst.io/>
- [1411] **[RTN-048]**, Neilsen, E.H., Jr., Jones, R.L., Yoachim, P., 2025, *Requirements for Scheduler and Observing Progress Monitoring Software*, Technical Note RTN-048, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-048.lsst.io/>
- [1412] **[DMTN-149]**, Nelson, S., 2020, *Alert Stream Simulator for Community Broker Development*, Data Management Technical Note DMTN-149, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-149.lsst.io/>
- [1413] **[DMTN-183]**, Nelson, S., 2021, *Alert Database Design*, Data Management Technical Note DMTN-183, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-183.lsst.io/>

- [1414] **[DMTN-210]**, Nelson, S., Smart, B.M., 2025, *Implementation of the LSST Alert Distribution System*, Data Management Technical Note DMTN-210, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-210.lsst.io/>
- [1415] **[DMTN-214]**, Nelson, S., Smart, B.M., 2025, *Alert Distribution System Operator's Manual*, Data Management Technical Note DMTN-214, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-214.lsst.io/>
- [1416] **[LSE-479]**, Network Engineering Team (NET), 2020, *Network Technical Document, Systems Engineering Controlled Document LSE-479*, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-479>
- [1417] Nicastro, L., Calderone, G., 2008, In: Argyle, R.W., Bunclark, P.S., Lewis, J.R. (eds.) *Astronomical Data Analysis Software and Systems XVII*, vol. 394 of *Astronomical Society of the Pacific Conference Series*, 487 (arXiv:0711.4964), doi:10.48550/arXiv.0711.4964, ADS Link
- [1418] **[LDM-502]**, Nidever, D., Economou, F., 2016, *The Measurement and Verification of DM Key Performance Metrics*, Data Management Controlled Document LDM-502, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-502>
- [1419] Nidever, D.L., 2016, *Evaluating the LSST Science Pipelines with Precursor Datasets*, URL <http://dx.doi.org/10.5281/zenodo.44673>, NSF Pavilion talk at the 227th American Astronomical Society Meeting, doi:10.5281/zenodo.44673
- [1420] Nidever, D.L., 2016, *Mapping the LMC outskirts with DECam*, URL <http://dx.doi.org/10.5281/zenodo.47537>, Presented at *Globular Clusters and Galaxy Halos*, Leiden, doi:10.5281/zenodo.47537
- [1421] Nieto-Santisteban, M.A., Szalay, A.S., Thakar, A.R., et al., 2005, arXiv e-prints, cs/0502018 (arXiv:cs/0502018), doi:10.48550/arXiv.cs/0502018, ADS Link
- [1422] **[SITCOMTN-095]**, Noarbe, N.S., 2024, *M1M3 - Settling time after a slew*, Commissioning Technical Note SITCOMTN-095, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-095.lsst.io/>
- [1423] Nobari, S., Tauheed, F., Heinis, T., et al., 2013, In: *Proceedings of the 2013 ACM SIGMOD International Conference on Management of Data, SIGMOD '13*, 701–712, ACM, New York, NY, USA, doi:10.1145/2463676.2463700

- [1424] **[LCA-13381]**, Nordby, M., LSST Camera Team, 2020, *LSST Camera Detector Plane Layout*, Camera Controlled Document LCA-13381, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LCA-13381>
- [1425] **[LCA-227]**, Nordby, M., Kurita, N., O'Neill, F., Marsh, D., 2014, *LSST Camera Quality Implementation Plan*, Camera Controlled Document LCA-227, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LCA-227>
- [1426] Nordin, J., Brinell, V., van Santen, J., et al., 2019, A&A, 631, A147 (arXiv:1904.05922), doi:10.1051/0004-6361/201935634, ADS Link
- [1427] Nordstroem, B., Latham, D.W., Morse, J.A., et al., 1994, A&A, 287, 338, ADS Link
- [1428] NSF-DOE Vera C. Rubin Observatory, 2020, LSST Atmospheric Transmission Imager and Slitless Spectrograph (LATISS), URL <https://www.osti.gov//servlets/purl/2571930>, doi:10.71929/rubin/2571930
- [1429] NSF-DOE Vera C. Rubin Observatory, 2021, Rubin observatory lsst tutorials [computer software], URL <https://doi.org/10.11578/rubin/dc.20250909.20>, doi:10.11578/rubin/dc.20250909.20
- [1430] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1 [Data set], URL <https://www.osti.gov//servlets/purl/2570308>, doi:10.71929/RUBIN/2570308
- [1431] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: calibrations dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570309>, doi:10.71929/RUBIN/2570309
- [1432] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: raw dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570310>, doi:10.71929/RUBIN/2570310
- [1433] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: visit_image dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570311>, doi:10.71929/RUBIN/2570311
- [1434] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: difference_image dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570312>, doi:10.71929/RUBIN/2570312

- [1435] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: deep_coadd dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570313>, doi:10.71929/RUBIN/2570313
- [1436] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: template_coadd dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570314>, doi:10.71929/RUBIN/2570314
- [1437] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: survey property dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570315>, doi:10.71929/RUBIN/2570315
- [1438] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: dia_source dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570316>, doi:10.71929/RUBIN/2570316
- [1439] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: DiaSource searchable catalog [Data set], URL <https://www.osti.gov//servlets/purl/2570317>, doi:10.71929/RUBIN/2570317
- [1440] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: dia_object dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570318>, doi:10.71929/RUBIN/2570318
- [1441] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: DiaObject searchable catalog [Data set], URL <https://www.osti.gov//servlets/purl/2570319>, doi:10.71929/RUBIN/2570319
- [1442] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: dia_object_forced_source dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570320>, doi:10.71929/RUBIN/2570320
- [1443] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: ForcedSourceOnDiaObject searchable catalog [Data set], URL <https://www.osti.gov//servlets/purl/2570321>, doi:10.71929/RUBIN/2570321
- [1444] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: source dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570322>, doi:10.71929/RUBIN/2570322

- [1445] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: Source searchable catalog [Data set], URL <https://www.osti.gov//servlets/purl/2570323>, doi:10.71929/RUBIN/2570323
- [1446] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: object dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570324>, doi:10.71929/RUBIN/2570324
- [1447] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: Object searchable catalog [Data set], URL <https://www.osti.gov//servlets/purl/2570325>, doi:10.71929/RUBIN/2570325
- [1448] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: object_forced_source dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570326>, doi:10.71929/RUBIN/2570326
- [1449] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: ForcedSource searchable catalog [Data set], URL <https://www.osti.gov//servlets/purl/2570327>, doi:10.71929/RUBIN/2570327
- [1450] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: visit_table dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570328>, doi:10.71929/RUBIN/2570328
- [1451] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: Visit searchable catalog [Data set], URL <https://www.osti.gov//servlets/purl/2570329>, doi:10.71929/RUBIN/2570329
- [1452] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: visit_detector_table dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570330>, doi:10.71929/RUBIN/2570330
- [1453] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: CcdVisit searchable catalog [Data set], URL <https://www.osti.gov//servlets/purl/2570331>, doi:10.71929/RUBIN/2570331
- [1454] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: ss_source dataset type [Data set], URL <https://www.osti.gov//servlets/purl/2570332>, doi:10.71929/RUBIN/2570332

- [1455] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: SSSource searchable catalog [Data set], URL <https://www.osti.gov//servlets/pur1/2570333>, doi:10.71929/RUBIN/2570333
- [1456] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: ss_object dataset type [Data set], URL <https://www.osti.gov//servlets/pur1/2570334>, doi:10.71929/RUBIN/2570334
- [1457] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: SSObject searchable catalog [Data set], URL <https://www.osti.gov//servlets/pur1/2570335>, doi:10.71929/RUBIN/2570335
- [1458] NSF-DOE Vera C. Rubin Observatory, 2025, Legacy Survey of Space and Time Data Preview 1: standard_bandpass dataset type [Data set], URL <https://www.osti.gov//servlets/pur1/2587407>, doi:10.71929/RUBIN/2587407
- [1459] Obe, R.O., Hsu, L.S., 2015, *PostGIS in Action*, Manning Publications Co., Greenwich, CT, USA, 2nd edn.
- [1460] O'Connor, P., 2015, *Journal of Instrumentation*, 10, C05010 (arXiv:1501.04137), doi:10.1088/1748-0221/10/05/C05010, ADS Link
- [1461] Oke, J.B., Gunn, J.E., 1983, *ApJ*, 266, 713, doi:10.1086/160817, ADS Link
- [1462] **[RTN-060]**, Olsen, K., 2023, *Supporting Computational Science with Rubin LSST*, Technical Note RTN-060, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-060.lsst.io/>
- [1463] **[RTN-062]**, Olsen, K., 2023, *In-Kind Team Communications Plan*, Technical Note RTN-062, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-062.lsst.io/>
- [1464] O'Mullane, W., 2005, *Large Scientific Data Systems: analysis of some existing projects and their applicability to Gaia*, Tech. rep., University of Barcelona, URL https://dms.cosmos.esa.int/COSMOS/doc_fetch.php?id=497678, Treball GAIA-C1-ESAC-HA-WOM-003
- [1465] **[DMTN-128]**, O'Mullane, W., 2019, *LSST Data Management All Hands*, Data Management Technical Note DMTN-128, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-128.lsst.io/>
- [1466] **[DMTN-130]**, O'Mullane, W., 2019, *Technical items to honor a tech great*, Data Management Technical Note DMTN-130, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-130.lsst.io/>

- [1467] **[DMTN-131]**, O'Mullane, W., 2019, *When clouds might be good for LSST*, Data Management Technical Note DMTN-131, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-131.lsst.io/>
- [1468] **[DMTN-134]**, O'Mullane, W., 2019, *Interacting with DOE LABs*, Data Management Technical Note DMTN-134, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-134.lsst.io/>
- [1469] **[LDM-722]**, O'Mullane, W., 2019, *DM provenance review WG*, Data Management Controlled Document LDM-722, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-722.lsst.io/>
- [1470] **[PSTN-002]**, O'Mullane, W., 2019, *Understanding of Telescope and Site Software situation*, Project Science Technical Note PSTN-002, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-002.lsst.io/>
- [1471] **[DMTN-144]**, O'Mullane, W., 2020, *Distribution of Rubin Observatory data outside the data rights community*, Data Management Technical Note DMTN-144, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-144.lsst.io/>
- [1472] **[DMTN-145]**, O'Mullane, W., 2020, *Bringing Rubin Observatory software together*, Data Management Technical Note DMTN-145, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-145.lsst.io/>
- [1473] **[LDM-702]**, O'Mullane, W., 2020, *Image display working group charge*, Data Management Controlled Document LDM-702, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-702.lsst.io/>
- [1474] **[PSTN-050]**, O'Mullane, W., 2020, *Notes on use of TeX and texmf for Construction papers*, Project Science Technical Note PSTN-050, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-050.lsst.io/>
- [1475] **[DMTN-108]**, O'Mullane, W., 2021, *Security of Rubin Observatory data*, Data Management Technical Note DMTN-108, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-108.lsst.io/>
- [1476] **[LDM-572]**, O'Mullane, W., 2021, *Chilean Data Access Center*, Data Management Controlled Document LDM-572, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-572.lsst.io/>

- [1477] **[DMTN-246]**, O'Mullane, W., 2023, *Running external code with Rubin pipelines*, Data Management Technical Note DMTN-246, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-246.lsst.io/>
- [1478] **[RTN-031]**, O'Mullane, W., 2023, *Second data facilities workshop findings*, Technical Note RTN-031, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-031.lsst.io/>
- [1479] **[RTN-065]**, O'Mullane, W., 2023, *Initial USDF throughput tests*, Technical Note RTN-065, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-065.lsst.io/>
- [1480] **[DMTN-287]**, O'Mullane, W., 2024, *Rubin's Hybrid On Premises-Cloud Data Access Center*, Data Management Technical Note DMTN-287, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-287.lsst.io/>
- [1481] **[DMTN-299]**, O'Mullane, W., 2024, *Jim Gray Astronomy Science Facility*, Data Management Technical Note DMTN-299, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-299.lsst.io/>
- [1482] **[ITTN-078]**, O'Mullane, W., 2024, *TMA ring status*, Information Technology Technical Note ITTN-078, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-078.lsst.io/>
- [1483] **[RTN-001]**, O'Mullane, W., 2024, *Data Preview 0: Definition and planning.*, Technical Note RTN-001, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-001.lsst.io/>
- [1484] **[RTN-069]**, O'Mullane, W., 2024, *Summit Software Team*, Technical Note RTN-069, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-069.lsst.io/>
- [1485] **[DMTN-158]**, O'Mullane, W., 2025, *DM Milestone Status*, Data Management Technical Note DMTN-158, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-158.lsst.io/>
- [1486] **[DMTN-223]**, O'Mullane, W., 2025, *User batch - possibilities and plans.*, Data Management Technical Note DMTN-223, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-223.lsst.io/>
- [1487] **[DMTN-232]**, O'Mullane, W., 2025, *Celebratory Milestones*, Data Management Technical Note DMTN-232, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-232.lsst.io/>
- [1488] **[DMTR-331]**, O'Mullane, W., 2025, *LDM-503-EFDb: Replication of Summit EFD to USDF Test Plan and Report*, Data Management Test Report DMTR-331, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-331.lsst.io/>

- [1489] **[PSTN-017]**, O'Mullane, W., 2025, *Overview of the Vera C. Rubin Observatory Data Management*, Project Science Technical Note PSTN-017, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-017.lsst.io/>
- [1490] **[RTN-046]**, O'Mullane, W., 2025, *Management and Execution plan for Data Management Operations.*, Technical Note RTN-046, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-046.lsst.io/>
- [1491] **[RTN-082]**, O'Mullane, W., 2025, *Pixel Zone system security plan*, Technical Note RTN-082, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-082.lsst.io/>
- [1492] **[RTN-085]**, O'Mullane, W., 2025, *Data Preview 1: Definition and planning*, Technical Note RTN-085, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-085.lsst.io/>
- [1493] **[SITCOMTN-052]**, O'Mullane, W., 2025, *Provenance*, Commissioning Technical Note SITCOMTN-052, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-052.lsst.io/>
- [1494] **[DMTN-263]**, O'Mullane, W., 2026, *ObsLocTap: Publishing the Rubin Observing Schedule*, Data Management Technical Note DMTN-263, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-263.lsst.io/>
- [1495] **[RTN-064]**, O'Mullane, W., 2026, *JOR recommendations*, Technical Note RTN-064, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-064.lsst.io/>
- [1496] **[RTN-068]**, O'Mullane, W., 2026, *POP milestones*, Technical Note RTN-068, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-068.lsst.io/>
- [1497] **[RTN-077]**, O'Mullane, W., AlSayyad, Y., 2024, *Non-Quality Performance Metrics for DM in Operations*, Technical Note RTN-077, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-077.lsst.io/>
- [1498] **[RTN-080]**, O'Mullane, W., Blum, R., 2024, *Statement of Work for the Rubin Observatory US Data Facility*, Technical Note RTN-080, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-080.lsst.io/>
- [1499] **[LDM-692]**, O'Mullane, W., Comoretto, G., 2025, *DM Verification Control Document*, Data Management Controlled Document LDM-692, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-692.lsst.io/>
- [1500] **[LDM-563]**, O'Mullane, W., Jenness, T., 2017, *Butler Working Group Charge*, Data Management Controlled Document LDM-563, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-563>

- [1501] O'Mullane, W., Lindegren, L., 1999, *Baltic Astronomy*, 8, 57, doi:10.1515/astro-1999-0106, ADS Link
- [1502] O'Mullane, W., Lindegren, L., 1999, *An Object-Oriented Framework for GAIA Data Processing*, Tech. rep., ESA
- [1503] O'Mullane, W., Luri, X., 2001, In: Brunner, R.J., Djorgovski, S.G., Szalay, A.S. (eds.) *Virtual Observatories of the Future*, vol. 225 of *Astronomical Society of the Pacific Conference Series*, 201, ADS Link
- [1504] **[PSTN-003]**, O'Mullane, W., Mueller, F., 2019, *Discussion of Object vs. Source table queries and data distribution*, Project Science Technical Note PSTN-003, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-003.lsst.io/>
- [1505] **[ITTN-006]**, O'Mullane, W., Silva, C., 2020, *Management and Planning of Rubin IT*, Information Technology Technical Note ITTN-006, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-006.lsst.io/>
- [1506] **[DMTN-153]**, O'Mullane, W., Slater, C., 2020, *Schema Management in DM*, Data Management Technical Note DMTN-153, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-153.lsst.io/>
- [1507] **[DMTN-072]**, O'Mullane, W., Swinbank, J., 2018, *Cloud technical assesment*, Data Management Technical Note DMTN-072, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-072.lsst.io/>
- [1508] **[LPM-221]**, O'Mullane, W., Willman, B., 2017, *Charge for LSST Data Access Policy Working Group*, Project Controlled Document LPM-221, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-221>
- [1509] O'Mullane, W., Hazell, A., Bennett, K., Bartelmann, M., Vuerli, C., 2000, In: Manset, N., Veillet, C., Crabtree, D. (eds.) *Astronomical Data Analysis Software and Systems IX*, vol. 216 of *Astronomical Society of the Pacific Conference Series*, 419, ADS Link
- [1510] O'Mullane, W., Banday, A.J., Górski, K.M., Kunszt, P., Szalay, A.S., 2001, In: Banday, A.J., Zaroubi, S., Bartelmann, M. (eds.) *Mining the Sky*, 638, doi:10.1007/10849171_84, ADS Link
- [1511] O'Mullane, W., Banday, A.J., Górski, K.M., Kunszt, P., Szalay, A.S., 2001, In: Banday, A.J., Zaroubi, S., Bartelmann, M. (eds.) *Mining the Sky*, 638, doi:10.1007/10849171_84, ADS Link

- [1512] O'Mullane, W., Gray, J., Li, N., et al., 2004, In: Ochsenbein, F., Allen, M.G., Egret, D. (eds.) *Astronomical Data Analysis Software and Systems (ADASS) XIII*, vol. 314 of *Astronomical Society of the Pacific Conference Series*, 372, [ADS Link](#)
- [1513] OMullane, W., Li, N., Nieto-Santisteban, M., et al., 2005, *arXiv e-prints*, cs/0502072 ([arXiv:cs/0502072](#)), doi:10.48550/arXiv.cs/0502072, [ADS Link](#)
- [1514] O'Mullane, W., Lammers, U., Bailer-Jones, C., et al., 2007, In: Shaw, R.A., Hill, F., Bell, D.J. (eds.) *Astronomical Data Analysis Software and Systems XVI*, vol. 376 of *Astronomical Society of the Pacific Conference Series*, 99 ([arXiv:astro-ph/0611885](#)), doi:10.48550/arXiv.astro-ph/0611885, [ADS Link](#)
- [1515] O'Mullane, W., Hoar, J., Lammers, U., 2008, In: Argyle, R.W., Bunclark, P.S., Lewis, J.R. (eds.) *Astronomical Data Analysis Software and Systems XVII*, vol. 394 of *Astronomical Society of the Pacific Conference Series*, 191 ([arXiv:0712.0249](#)), doi:10.48550/arXiv.0712.0249, [ADS Link](#)
- [1516] O'Mullane, W., Hernández, J., Hoar, J., Lammers, U., 2009, In: Bohlender, D.A., Durand, D., Dowler, P. (eds.) *Astronomical Data Analysis Software and Systems XVIII*, vol. 411 of *Astronomical Society of the Pacific Conference Series*, 470, [ADS Link](#)
- [1517] O'Mullane, W., Lammers, U., Hernandez, J., 2011, In: Evans, I.N., Accomazzi, A., Mink, D.J., Rots, A.H. (eds.) *Astronomical Data Analysis Software and Systems XX*, vol. 442 of *Astronomical Society of the Pacific Conference Series*, 351, [ADS Link](#)
- [1518] O'Mullane, W., Lammers, U., Lindegren, L., Hernandez, J., Hobbs, D., 2011, *Experimental Astronomy*, 31, 215 ([arXiv:1108.2206](#)), doi:10.1007/s10686-011-9248-z, [ADS Link](#)
- [1519] O'Mullane, W., Luri, X., Parsons, P., et al., 2011, *Experimental Astronomy*, 31, 243 ([arXiv:1108.0355](#)), doi:10.1007/s10686-011-9241-6, [ADS Link](#)
- [1520] O'Mullane, W., Luri, X., Parsons, P., et al., 2011, *Experimental Astronomy*, 31, 243 ([arXiv:1108.0355](#)), doi:10.1007/s10686-011-9241-6, [ADS Link](#)
- [1521] **[LDM-553]**, O'Mullane, W., Swinbank, J.D., Jurić, M., DMLT, 2017, *Evolution of the Data Management Plan and Organization*, Data Management Controlled Document LDM-553, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-553>
- [1522] **[DMTN-078]**, O'Mullane, W., Swinbank, J., Lim, K., et al., 2018, *Potential proofs of concept for cloud deployment*, Data Management Technical Note DMTN-078, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-078.lsst.io/>

- [1523] O'Mullane, W., Gaffney, N., Economou, F., et al., 2019, arXiv e-prints, arXiv:1907.13060 (arXiv:1907.13060), doi:10.48550/arXiv.1907.13060, ADS Link
- [1524] **[DMTN-119]**, O'Mullane, W., Gruendl, R., Blum, R., 2019, *Report on Operations Rehearsal #1*, Data Management Technical Note DMTN-119, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-119.lsst.io/>
- [1525] **[DMTN-096]**, O'Mullane, W., Swinbank, J., Guy, L., Bauer, A., 2020, *Implementation and impacts of DM scope options.*, Data Management Technical Note DMTN-096, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-096.lsst.io/>
- [1526] **[LPM-251]**, O'Mullane, W., Willman, B., Graham, M., Guy, L., Blum, R., 2020, *Proposed Policy for Independent Data Access Centers*, Project Controlled Document LPM-251, NSF-DOE Vera C. Rubin Observatory, URL <https://lpm-251.lsst.io/>
- [1527] **[DMTN-209]**, O'Mullane, W., Economou, F., Huang, F., et al., 2021, *Rubin Science Platform on Google: the story so far.*, Data Management Technical Note DMTN-209, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-209.lsst.io/>
- [1528] **[LSO-011]**, O'Mullane, W., Marshall, P., Guy, L., 2021, *OBSOLETE see RDO-11 . Release Scenarios for LSST Data*, LSO-011, NSF-DOE Vera C. Rubin Observatory, URL <https://lso-011.lsst.io/>
- [1529] **[RTN-003]**, O'Mullane, W., Willman, B., Graham, M., et al., 2021, *Guidelines for Rubin Independent Data Access Centers*, Technical Note RTN-003, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-003.lsst.io/>
- [1530] **[RTN-013]**, O'Mullane, W., Dubois, R., Chiang, H.F., 2022, *Near term workflow for pre-operations with PanDA*, Technical Note RTN-013, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-013.lsst.io/>
- [1531] **[DMTN-240]**, O'Mullane, W., Economou, F., Lim, K.T., et al., 2022, *Software Architecture and System Design of Rubin Observatory*, Data Management Technical Note DMTN-240, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-240.lsst.io/>
- [1532] **[RTN-041]**, O'Mullane, W., Alsayyad, Y., Chiang, H.F., et al., 2023, *Data Preview 0.2 and Operations rehearsal for DRP.*, Technical Note RTN-041, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-041.lsst.io/>
- [1533] **[DMTN-135]**, O'Mullane, W., Dubois, R., Butler, M., Lim, K.T., 2023, *DM sizing model and cost plan for construction and operations.*, Data Management Technical Note DMTN-135, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-135.lsst.io/>

- [1534] **[LDM-564]**, O'Mullane, W., Economou, F., Jenness, T., Loftus, A., Swinbank, J.D., 2023, *Data Management Releases for Verification/Integration*, Data Management Controlled Document LDM-564, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-564.lsst.io/>
- [1535] **[RTN-053]**, O'Mullane, W., Lim, K., Reinking, H., 2023, *L2 - USDF ready for ComCam processing*, Technical Note RTN-053, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-053.lsst.io/>
- [1536] **[LDM-294]**, O'Mullane, W., Swinbank, J., Juric, M., Guy, L., DMLT, 2023, *Data Management Organization and Management*, Data Management Controlled Document LDM-294, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-294.lsst.io/>
- [1537] **[LDM-503]**, O'Mullane, W., Swinbank, J., Juric, M., et al., 2023, *Data Management Test Plan*, Data Management Controlled Document LDM-503, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-503.lsst.io/>
- [1538] **[DMTN-199]**, O'Mullane, W., Allbery, R., AlSayyad, Y., et al., 2024, *Rubin Observatory Data Security Standards Implementation*, Data Management Technical Note DMTN-199, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-199.lsst.io/>, doi:10.71929/rubin/2586668
- [1539] O'Mullane, W., AlSayyad, Y., Chiang, J., et al., 2024, In: Ibsen, J., Chiozzi, G. (eds.) *Software and Cyberinfrastructure for Astronomy VIII*, vol. 13101 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 131012B, doi:10.1117/12.3018005, ADS Link
- [1540] O'Mullane, W., Economou, F., Huang, F., et al., 2024, In: Hugo, B.V., Van Rooyen, R., Smirnov, O.M. (eds.) *Astromical Data Analysis Software and Systems XXXI*, vol. 535 of Astronomical Society of the Pacific Conference Series, 227 (arXiv:2111.15030), doi:10.48550/arXiv.2111.15030, ADS Link
- [1541] O'Mullane, W., Economou, F., Huang, F., et al., 2024, In: Hugo, B.V., Van Rooyen, R., Smirnov, O.M. (eds.) *Astromical Data Analysis Software and Systems XXXI*, vol. 535 of Astronomical Society of the Pacific Conference Series, 227 (arXiv:2111.15030), doi:10.48550/arXiv.2111.15030, ADS Link
- [1542] **[RTN-030]**, O'Mullane, W., Allbery, R., Bolton, A., Lim, K.T., 2025, *Rubin Data and Information Security Plan*, Technical Note RTN-030, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-030.lsst.io/>

- [1543] **[RTN-005]**, O'Mullane, W., Bauer, A., Blum, R., et al., 2025, *Rubin Operations Work Management and Budget Planning*, Technical Note RTN-005, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-005.lsst.io/>
- [1544] **[DMTN-286]**, O'Mullane, W., Economou, F., Marshall, P., 2025, *Data security for Rubin communication channels*, Data Management Technical Note DMTN-286, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-286.lsst.io/>
- [1545] O'Mullane W., N.V., 2010, *Charting the Galaxy with the Gaia Satellite and InterSystems Caché*, Tech. rep., InterSystems and DPAC, URL http://www.intersystems.com/cache/whitepapers/charting_the_galaxy.html
- [1546] Onken, C.A., Wolf, C., Bessell, M.S., et al., 2019, PASA, 36, e033 (arXiv:2008.10359), doi:10.1017/pasa.2019.27, ADS Link
- [1547] OpenMP, OpenMP, URL <http://www.openmp.org/>
- [1548] Oracle, Oracle – Database 12c, URL <https://www.oracle.com/database/index.html>
- [1549] Oracle, 2005, *Data Compression in 10g*, Tech. rep., Oracle Corporation, URL http://www.oracle.com/technology/products/bi/db/10g/pdf/twp_data_compression_10gr2_0505.pdf
- [1550] Oracle, 2007, *Data Compression in 11g*, Tech. rep., Oracle Corporation, URL http://download.oracle.com/docs/cd/B28359_01/server.111/b28318/schema.htm#CNCPT1132
- [1551] **[SATMP]**, Osuna, P., 2011, *Science Archives and VO Team (SAT) Management Plan*, SAT_GEN_PL_3.0_06_MP_30_May_2011, URL http://www.rssd.esa.int/l1ink/livelink/fetch/-415780/2741092/SAT_GEN_PL_3.0_06_MP_30May2011.pdf?nodeid=3120171&vernum=-2
- [1552] Osuna, P., Ortiz, I., Lusted, J., et al., 2008, IVOA Astronomical Data Query Language Version 2.00, IVOA Recommendation 30 October 2008 (arXiv:1110.0503), doi:10.5479/ADS/bib/2008ivoa.spec.10300, ADS Link
- [1553] **[ITTN-001]**, Oteiza, N.S., Hoblitt, J., 2019, *Redux Notes - Puppeton July, 2019*, Information Technology Technical Note ITTN-001, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-001.lsst.io/>
- [1554] Otto, S., Politzer, H.D., Preskill, J., Wise, M.B., 1986, ApJ, 304, 62, doi:10.1086/164144, ADS Link
- [1555] Owen, R., 2016, In: Jenness, T., Robitaille, T., Tollerud, E., Mumford, S., Cruz, K. (eds.) *Python in Astronomy 2016*, 28, doi:10.5281/zenodo.48410, ADS Link

- [1556] **[TSTN-033]**, Owen, R., 2022, *Exploring Kafka for Telescope Control*, Telescope and Site Technical Note TSTN-033, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-033.lsst.io/>
- [1557] **[DMTN-041]**, Owen, R., Krughoff, S., 2014, *Design of the LSST Camera Geometry system*, Data Management Technical Note DMTN-041, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-041.lsst.io/>
- [1558] Owens, J.C., 1967, *Appl. Opt.*, 6, 51, doi:10.1364/AO.6.000051, ADS Link
- [1559] **[DMTN-168]**, Padolski, S., Ye, S., Karavakis, E., 2022, *Running Science Pipelines using PanDA*, Data Management Technical Note DMTN-168, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-168.lsst.io/>
- [1560] **[SMTN-011]**, Pai, A., 2025, *Ghost Impacted Area*, Simulations Team Technical Note SMTN-011, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-011.lsst.io/>
- [1561] **[SITCOMTN-173]**, Pai, A., Drlica-Wagner, A., Kelvin, L.S., Meyers, J.E., 2026, *Impact of Optical Ghosts in Rubin Commissioning Data*, Commissioning Technical Note SITCOMTN-173, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-173.lsst.io/>
- [1562] **[SITCOMTN-174]**, Pai, A., Léget, P.F., Chang, C., 2026, *Impact of Including Wavelength-dependent PSF Modeling in Rubin Commissioning Data*, Commissioning Technical Note SITCOMTN-174, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-174.lsst.io/>
- [1563] Pankratus, V., Li, J., Gowanlock, M., et al., 2016, *IEEE Intelligent Systems*, 31, 3, doi:10.1109/MIS.2016.60
- [1564] **[DMTN-005]**, Parejko, J., 2016, *Current LSST stack WCS usage*, Data Management Technical Note DMTN-005, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-005.lsst.io/>
- [1565] **[DMTN-027]**, Parejko, J., 2016, *Renaming an LSST git Repository*, Data Management Technical Note DMTN-027, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-027.lsst.io/>
- [1566] **[DMTN-010]**, Parejko, J., Owen, R., 2016, *WCS and Distortion Requirements and Existing Options*, Data Management Technical Note DMTN-010, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-010.lsst.io/>
- [1567] **[SQR-017]**, Parejko, J., Sick, J., 2017, *Validation Metrics Framework*, SQuaRE Technical Note SQR-017, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-017.lsst.io/>

- [1568] Parejko, J., Jenness, T., Owen, R., 2016, In: Jenness, T., Robitaille, T., Tollerud, E., Mumford, S., Cruz, K. (eds.) Python in Astronomy 2016, 17, doi:10.5281/zenodo.48414, ADS Link
- [1569] **[DMTN-036]**, Parejko, J.K., Astier, P., Bosch, J.F., 2025, *jointcal: Simultaneous Astrometry & Photometry for thousands of Exposures with Large CCD Mosaics*, Data Management Technical Note DMTN-036, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-036.lsst.io/>, doi:10.71929/rubin/2586685
- [1570] **[SITCOMTN-077]**, Park, H., 2023, *Drift During Tracking Verification*, Commissioning Technical Note SITCOMTN-077, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-077.lsst.io/>
- [1571] **[SITCOMTN-039]**, Park, H., Hebert, C.A., Lage, C., Urbach, E., 2023, *Stuttered Image Analysis*, Commissioning Technical Note SITCOMTN-039, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-039.lsst.io/>
- [1572] **[SITCOMTN-084]**, Park, H., Lage, C., Boutigny, D., 2023, *Position Repeatability Analysis*, Commissioning Technical Note SITCOMTN-084, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-084.lsst.io/>
- [1573] Park, H.Y., Nomerotski, A., Tsybychev, D., 2017, Journal of Instrumentation, 12, C05015, doi:10.1088/1748-0221/12/05/C05015, ADS Link
- [1574] **[DMTN-028]**, Patterson, M.T., 2018, *Benchmarking a distribution system for LSST alerts*, Data Management Technical Note DMTN-028, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-028.lsst.io/>
- [1575] **[DMTN-081]**, Patterson, M.T., 2018, *Deploying an alert stream mini-broker prototype*, Data Management Technical Note DMTN-081, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-081.lsst.io/>
- [1576] **[DMTN-093]**, Patterson, M.T., Bellm, E.C., Swinbank, J.D., Nelson, S., Smart, B.M., 2024, *Design of the LSST Alert Distribution System*, Data Management Technical Note DMTN-093, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-093.lsst.io/>, doi:10.71929/rubin/2586493
- [1577] Pavlo, A., Paulson, E., Rasin, A., et al., 2009, In: Proceedings of the 2009 ACM SIGMOD International Conference on Management of Data, SIGMOD '09, 165–178, ACM, New York, NY, USA, URL <http://doi.acm.org/10.1145/1559845.1559865>, doi:10.1145/1559845.1559865

- [1578] Pegasus, Pegasus WMS, URL <https://pegasus.isi.edu/>
- [1579] Pérez-Jordán, w., Castro-Almazán, J.A., Muñoz-Tuñón, C., 2018, MNRAS, 477, 5477 (arXiv:1804.05200), doi:10.1093/mnras/sty943, ADS Link
- [1580] Perryman, M., 2009, *Astronomical Applications of Astrometry: Ten Years of Exploitation of the Hipparcos Satellite Data*, ADS Link
- [1581] Perryman, M., 2010, *The Making of History's Greatest Star Map*, doi:10.1007/978-3-642-11602-5, ADS Link
- [1582] Perryman, M., de Bruijne, J., Lammers, U., 2008, Experimental Astronomy, 22, 143, doi:10.1007/s10686-008-9116-7, ADS Link
- [1583] Perryman, M.A.C., de Boer, K.S., Gilmore, G., et al., 2001, A&A, 369, 339 (arXiv:astro-ph/0101235), doi:10.1051/0004-6361:20010085, ADS Link
- [1584] Peschka, J., 2010, Facebook messaging - hbase comes of age, URL https://web.archive.org/web/20110215081418/http://nosqlpedia.com/wiki/Facebook_Messaging_-_HBase_Comes_of_Age
- [1585] **[SQR-007]**, Peterson, J.M., 2016, *SQuaRE's Logging, monitoring and metrics system*, SQuaRE Technical Note SQR-007, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-007.lsst.io/>
- [1586] Peterson, J.R., Jernigan, J.G., Kahn, S.M., et al., 2015, ApJS, 218, 14 (arXiv:1504.06570), doi:10.1088/0067-0049/218/1/14, ADS Link
- [1587] **[LPM-122]**, Petravick, D., 2015, *LSST Information Classification Policy*, Project Controlled Document LPM-122, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-122>
- [1588] **[DMTN-051]**, Petravick, D., 2017, *LDF File Systems Baseline Overview*, Data Management Technical Note DMTN-051, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-051.lsst.io/>
- [1589] **[LPM-123]**, Petravick, D., 2017, *LSST General Acceptable Use Policy*, Project Controlled Document LPM-123, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-123>
- [1590] **[LSE-239]**, Petravick, D., Hoblitt, J., Lim, K.T., et al., 2016, *Base Facility Data Center Design Requirements*, Systems Engineering Controlled Document LSE-239, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-239>

- [1591] **[LDM-230]**, Petravick, D., Butler, M., Gelman, M., 2018, *Concept of Operations for the LSST Data Facility Services*, Data Management Controlled Document LDM-230, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-230.lsst.io/>
- [1592] **[LDM-129]**, Petravick, D., Johnson, M., Butler, M., 2018, *LSST Data Facility Logical Information Technology and Communications Design*, Data Management Controlled Document LDM-129, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-129>
- [1593] **[LPM-121]**, Petravick, D.L., Withers, A., 2016, *LSST Master Information Security Policy*, Project Controlled Document LPM-121, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-121>
- [1594] Petrosian, V., 1976, ApJ, 210, L53, doi:10.1086/18230110.1086/182253, ADS Link
- [1595] Pickles, A.J., 1998, PASP, 110, 863, doi:10.1086/316197, ADS Link
- [1596] Pierfederici, F., 2009, LSST-PanSTARRS Solar System Events, URL <http://www.cacr.caltech.edu/hotwired2/program/presentations/pierfederici.pdf>, Presented at Hot-Wiring the Transient Universe 2, Santa Cruz
- [1597] **[DMTN-003]**, Pietrowicz, S., 2015, *Description of v1.0 of the Alert Production Simulator*, Data Management Technical Note DMTN-003, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-003.lsst.io/>
- [1598] **[DMTN-062]**, Pietrowicz, S., 2017, *OpenShift investigation*, Data Management Technical Note DMTN-062, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-062.lsst.io/>
- [1599] **[DMTN-071]**, Pietrowicz, S., 2018, *Kubernetes Installation*, Data Management Technical Note DMTN-071, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-071.lsst.io/>
- [1600] **[DMTN-084]**, Pietrowicz, S., 2018, *Kubernetes Notes*, Data Management Technical Note DMTN-084, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-084.lsst.io/>
- [1601] **[DMTN-095]**, Pietrowicz, S., 2018, *Kubernetes Guidelines*, Data Management Technical Note DMTN-095, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-095.lsst.io/>
- [1602] Pike, R., Dorward, S., Griesemer, R., Quinlan, S., 2005, *Scientific Programming*, 13, 277, doi:10.1155/2005/962135
- [1603] **[Document-5373]**, Pinto, P., Kantor, J., Strauss, M., Sweeney, D., 2008, *Data Access White Paper*, Informal Construction Document Document-5373, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-5373>

- [1604] Plante, R., Greene, G., Hanisch, R., et al., 2004, In: Ochsenbein, F., Allen, M.G., Egret, D. (eds.) *Astronomical Data Analysis Software and Systems (ADASS) XIII*, vol. 314 of *Astronomical Society of the Pacific Conference Series*, 585, ADS Link
- [1605] **[Document-9541]**, Plante, R., Allsman, R., Axelrod, T., et al., 2010, *Results from Data Challenge 1*, Informal Construction Document Document-9541, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-9541>
- [1606] Plazas, A.A., Bernstein, G., 2012, *PASP*, 124, 1113 (arXiv:1204.1346), doi:10.1086/668294, ADS Link
- [1607] Plazas, A.A., Shapiro, C., Smith, R., Huff, E., Rhodes, J., 2018, *PASP*, 130, 065004 (arXiv:1712.06642), doi:10.1088/1538-3873/aab820, ADS Link
- [1608] Plazas Malagón, A.A., Waters, C., Broughton, A., et al., 2025, *Journal of Astronomical Telescopes, Instruments, and Systems*, 11, 011209 (arXiv:2404.14516), doi:10.1117/1.JATIS.11.1.011209, ADS Link
- [1609] **[CTN-001]**, Plazas Malagón, A.A., Digel, S.W., Roodman, A., et al., 2026, *LSSTCam and LSSTComCam Focal Plane Layouts*, Camera Technical Note CTN-001, NSF-DOE Vera C. Rubin Observatory, URL <https://ctn-001.lsst.io/>, doi:10.71929/rubin/2584019
- [1610] **[DMTN-079]**, Plutchak, J., 2018, *Investigations for Consolidating System Management and Deployment*, Data Management Technical Note DMTN-079, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-079.lsst.io/>
- [1611] **[SITCOMTN-118]**, Polen, B., 2024, *Giant Donut Test (WET-005)*, Commissioning Technical Note SITCOMTN-118, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-118.lsst.io/>
- [1612] **[SITCOMTN-127]**, Polen, B., 2024, *Wavefront Estimation Chromaticity Test (WET-008)*, Commissioning Technical Note SITCOMTN-127, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-127.lsst.io/>
- [1613] **[SITCOMTN-142]**, Polen, B., 2024, *Background Galaxies and Cosmic Rays*, Commissioning Technical Note SITCOMTN-142, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-142.lsst.io/>
- [1614] **[RTN-099]**, Porter, M.N., Tucker, D.L., Smith, J.A., Adair, C.L., 2026, *Photometric Transformation Relations for the LSST Data Preview 1*, Technical Note RTN-099, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-099.lsst.io/>, doi:10.71929/rubin/3006074

- [1615] Pourbaix, D., 2002, *A&A*, 385, 686 (arXiv:astro-ph/0201132), doi:10.1051/0004-6361:20020149, ADS Link
- [1616] Press, W.H., Teukolsky, S.A., Vetterling, W.T., Flannery, B.P., 2002, *Numerical Recipes in C*, Cambridge University Press, 2 edn.
- [1617] Prod'homme, T., Brown, A.G.A., Lindegren, L., Short, A.D.T., Brown, S.W., 2011, *MNRAS*, 414, 2215 (arXiv:1103.3630), doi:10.1111/j.1365-2966.2011.18537.x, ADS Link
- [1618] Project, A.L.S., Apache log4cxx, URL https://logging.apache.org/log4cxx/latest_stable/
- [1619] **[LPM-162]**, Project Science Team, 2015, *Project Publication Policy*, Project Controlled Document LPM-162, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-162>
- [1620] Protopapas, P., Giammarco, J.M., Faccioli, L., et al., 2006, *MNRAS*, 369, 677 (arXiv:astro-ph/0505495), doi:10.1111/j.1365-2966.2006.10327.x, ADS Link
- [1621] Prusti, T., 2014, In: *EAS Publications Series*, vol. 67-68 of *EAS Publications Series*, 15–21, doi:10.1051/eas/1567003, ADS Link
- [1622] **[SITCOMTN-109]**, Quint, B.C., 2024, *M1M3 - analyze position and rotation stability throughout a tracking period*, Commissioning Technical Note SITCOMTN-109, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-109.lsst.io/>
- [1623] **[SITCOMTN-126]**, Quint, B.C., 2024, *AuxTel image quality wind study*, Commissioning Technical Note SITCOMTN-126, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-126.lsst.io/>
- [1624] **[SITCOMTN-147]**, Quint, B.C., 2024, *M2 Response to short and long slews*, Commissioning Technical Note SITCOMTN-147, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-147.lsst.io/>
- [1625] **[SITCOMTN-150]**, Quint, B.C., 2024, *Summary of M2 Tests*, Commissioning Technical Note SITCOMTN-150, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-150.lsst.io/>
- [1626] **[SITCOMTN-092]**, Quint, B.C., 2025, *M1M3 Force Balance System - Inertia Compensation*, Commissioning Technical Note SITCOMTN-092, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-092.lsst.io/>

- [1627] **[SITCOMTN-138]**, Quint, B.C., 2025, *Rotator Emergency Stopping Distance*, Commissioning Technical Note SITCOMTN-138, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-138.lsst.io/>
- [1628] **[SITCOMTN-176]**, Quint, B.C., 2025, *M2Hexapod - Strut oscillation analysis*, Commissioning Technical Note SITCOMTN-176, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-176.lsst.io/>
- [1629] **[SITCOMTN-175]**, Quint, B.C., 2026, *Filter Change defocus variation study*, Commissioning Technical Note SITCOMTN-175, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-175.lsst.io/>
- [1630] Quobyte, Quobyte – Data Center File System, URL <https://www.quobyte.com/>
- [1631] RabbitMQ, RabbitMQ – Messaging that just works, URL <https://www.rabbitmq.com/>
- [1632] **[SITCOMTN-141]**, Ramírez, K.P.n., 2024, *M1M3 temperature analysis under mirror transportation*, Commissioning Technical Note SITCOMTN-141, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-141.lsst.io/>
- [1633] Randles, C.A., da Silva, A.M., Buchard, V., et al., 2017, *Journal of Climate*, 30, 6823, URL <https://doi.org/10.1175/JCLI-D-16-0609.1> (<https://doi.org/10.1175/JCLI-D-16-0609.1>), doi:10.1175/JCLI-D-16-0609.1
- [1634] **[Document-10512]**, Rasmussen, A., 2011, *LSST Dynamic Range and its Relation to Sensor Full Well Depth*, Informal Construction Document Document-10512, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-10512>
- [1635] **[Document-8590]**, Rasmussen, A., 2015, *Sensor Modeling for the LSST Camera Focal Plane: Current Status of SLAC Originated Code*, Informal Construction Document Document-8590, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-8590>
- [1636] **[LCA-19636]**, Rasmussen, A., 2024, *Focal Plane Fill Factor Verification Report*, Camera Controlled Document LCA-19636, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LCA-19636>
- [1637] **[DMTN-039]**, Rawls, M., 2019, *A Prototype AP Pipeline*, Data Management Technical Note DMTN-039, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-039.lsst.io/>
- [1638] Re Fiorentin, P., Bailer-Jones, C.A.L., Lee, Y.S., et al., 2007, *A&A*, 467, 1373 (arXiv:astro-ph/0703309), doi:10.1051/0004-6361:20077334, ADS Link

- [1639] Recio-Blanco, A., Bijaoui, A., de Laverny, P., 2006, MNRAS, 370, 141 (arXiv:astro-ph/0604385), doi:10.1111/j.1365-2966.2006.10455.x, ADS Link
- [1640] **[DMTN-314]**, Reed, S.L., 2025, *An introduction to Analysis Tools*, Data Management Technical Note DMTN-314, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-314.lsst.io/>
- [1641] Refregier, A., 2003, ARA&A, 41, 645 (arXiv:astro-ph/0307212), doi:10.1146/annurev.astro.41.111302.102207, ADS Link
- [1642] **[LSE-390]**, Reil, K., Claver, C., Riot, V., Krabbendam, V., 2020, *Commissioning Execution Plan*, Systems Engineering Controlled Document LSE-390, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-390>
- [1643] **[PSTN-036]**, Reil, K.A., 2020, *LSST Camera Instrumental Signature Characterization, Calibration and Removal*, Project Science Technical Note PSTN-036, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-036.lsst.io/>
- [1644] **[ITTN-012]**, Reinking, H., 2020, *Graylog k8s deployment and configuration*, Information Technology Technical Note ITTN-012, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-012.lsst.io/>
- [1645] **[ITTN-027]**, Reinking, H., 2020, *Monitoring over Icinga2*, Information Technology Technical Note ITTN-027, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-027.lsst.io/>
- [1646] **[ITTN-036]**, Reinking, H., 2021, *Virtualization Cluster Topology and Design*, Information Technology Technical Note ITTN-036, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-036.lsst.io/>
- [1647] **[ITTN-048]**, Reinking, H., 2021, *CentOS System Disk Encryption*, Information Technology Technical Note ITTN-048, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-048.lsst.io/>
- [1648] **[ITTN-052]**, Reinking, H., 2021, *Base Data Center Power off/Power on Procedure*, Information Technology Technical Note ITTN-052, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-052.lsst.io/>
- [1649] **[ITTN-054]**, Reinking, H., 2021, *TIG Infrastructure*, Information Technology Technical Note ITTN-054, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-054.lsst.io/>

- [1650] **[DMTN-007]**, Reiss, D., 2016, *Dipole characterization for image differencing*, Data Management Technical Note DMTN-007, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-007.lsst.io/>
- [1651] **[DMTN-061]**, Reiss, D.J., 2017, *State of image subtraction in the LSST stack*, Data Management Technical Note DMTN-061, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-061.lsst.io/>
- [1652] **[DMTN-021]**, Reiss, D.J., Lupton, R.H., 2016, *Implementation of Image Difference Decorrelation*, Data Management Technical Note DMTN-021, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-021.lsst.io/>, doi:10.71929/rubin/2586490
- [1653] **[SMTN-007]**, Reuter, M., 2016, *So, You Want to Write a Scheduler for SOCS*, Simulations Team Technical Note SMTN-007, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-007.lsst.io/>
- [1654] **[SITCOMTN-001]**, Reuter, M., 2019, *Operations Manual for Dome Seeing Monitor*, Commissioning Technical Note SITCOMTN-001, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-001.lsst.io/>
- [1655] **[TSTN-019]**, Reuter, M., 2020, *Deployment of Containerized Control System Components*, Telescope and Site Technical Note TSTN-019, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-019.lsst.io/>
- [1656] **[TSTN-025]**, Reuter, M., 2020, *Stress Testing New Releases*, Telescope and Site Technical Note TSTN-025, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-025.lsst.io/>
- [1657] **[PSTN-040]**, Reuter, M.A., 2019, *Tracking of LSST System Performance with Continuous Integration Methods*, Project Science Technical Note PSTN-040, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-040.lsst.io/>
- [1658] Reuter, M.A., Cook, K.H., Delgado, F., Petry, C.E., Ridgway, S.T., 2016, In: Angeli, G.Z., Dierickx, P. (eds.) *Modeling, Systems Engineering, and Project Management for Astronomy VI*, vol. 9911 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 991125, doi:10.1117/12.2232680, ADS Link
- [1659] **[Report-561]**, Review Committee, 2018, *Telescope & Site (T&S) Software Review Report*, Construction Report Report-561, NSF-DOE Vera C. Rubin Observatory, URL <https://lsst/Report-561>
- [1660] **[TSTN-002]**, Ribeiro, T., 2019, *Software Deployment Strategy*, Telescope and Site Technical Note TSTN-002, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-002.lsst.io/>

- [1661] **[TSTN-012]**, Ribeiro, T., 2020, *Auxiliary Telescope M1 Pressure Look Up Table.*, Telescope and Site Technical Note TSTN-012, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-012.lsst.io/>
- [1662] **[TSTN-013]**, Ribeiro, T., 2020, *Auxiliary Telescope Hexapod Look Up Table.*, Telescope and Site Technical Note TSTN-013, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-013.lsst.io/>
- [1663] **[TSTN-016]**, Ribeiro, T., 2020, *Auxiliary Telescope: Determining sensitivity matrix for hexapod correction using CWFS data*, Telescope and Site Technical Note TSTN-016, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-016.lsst.io/>
- [1664] **[TSTN-014]**, Ribeiro, T., 2021, *Auxiliary Telescope Building and fitting pointing model.*, Telescope and Site Technical Note TSTN-014, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-014.lsst.io/>
- [1665] **[TSTN-017]**, Ribeiro, T., 2021, *Handling CSC configuration and ancillary data.*, Telescope and Site Technical Note TSTN-017, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-017.lsst.io/>
- [1666] **[TSTN-029]**, Ribeiro, T., 2022, *The Engineering Facility Database Large File Object Infrastructure*, Telescope and Site Technical Note TSTN-029, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-029.lsst.io/>
- [1667] **[TSTN-030]**, Ribeiro, T., 2022, *Kafka schemas and schema evolution*, Telescope and Site Technical Note TSTN-030, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-030.lsst.io/>
- [1668] **[TSTN-031]**, Ribeiro, T., 2022, *Integration Milestone Pf*, Telescope and Site Technical Note TSTN-031, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-031.lsst.io/>
- [1669] **[TSTN-035]**, Ribeiro, T., 2022, *Handling Targets of Opportunity*, Telescope and Site Technical Note TSTN-035, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-035.lsst.io/>
- [1670] **[TSTN-037]**, Ribeiro, T., 2022, *Telescope and Site Software Verification strategy*, Telescope and Site Technical Note TSTN-037, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-037.lsst.io/>
- [1671] **[TSTN-038]**, Ribeiro, T., 2022, *Postmortem for network failure for AT run in 20221206*, Telescope and Site Technical Note TSTN-038, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-038.lsst.io/>

- [1672] **[TSTN-043]**, Ribeiro, T., 2023, *TMA + M1M3 dynamic testing*, Telescope and Site Technical Note TSTN-043, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-043.lsst.io/>
- [1673] **[TSTN-044]**, Ribeiro, T., 2024, *Night Planning Tool*, Telescope and Site Technical Note TSTN-044, Vera C. Rubin Observatory, URL <https://tstn-044.lsst.io/>
- [1674] **[TSTN-045]**, Ribeiro, T., 2024, *Replacing DDS with Apache Kafka as middleware technology for the Rubin Observatory Control System*, Telescope and Site Technical Note TSTN-045, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-045.lsst.io/>
- [1675] **[TSTN-048]**, Ribeiro, T., 2024, *Extending the ScriptQueue to allow parallel execution of SAL Scripts.*, Telescope and Site Technical Note TSTN-048, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-048.lsst.io/>
- [1676] **[TSTN-052]**, Ribeiro, T., 2025, *Control System meltdown with kafka*, Telescope and Site Technical Note TSTN-052, Vera C. Rubin Observatory, URL <https://tstn-052.lsst.io/>
- [1677] **[TSTN-051]**, Ribeiro, T., Dennihy, E., 2025, *Managing The Observing Environment.*, Telescope and Site Technical Note TSTN-051, Vera C. Rubin Observatory, URL <https://tstn-051.lsst.io/>
- [1678] **[TSTN-034]**, Ribeiro, T., Fausti, A., 2022, *Catcher design*, Telescope and Site Technical Note TSTN-034, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-034.lsst.io/>
- [1679] **[TSTN-001]**, Ribeiro, T., Ingraham, P., 2022, *Proposal to conduct in-house CSC development.*, Telescope and Site Technical Note TSTN-001, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-001.lsst.io/>
- [1680] **[TSTN-020]**, Ribeiro, T., Ingraham, P., 2022, *Configuration User Manual*, Telescope and Site Technical Note TSTN-020, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-020.lsst.io/>
- [1681] **[LSE-150]**, Ribeiro, T., O'Mullane, W., Axelrod, T., Mills, D., 2020, *Control Software Architecture*, Systems Engineering Controlled Document LSE-150, NSF-DOE Vera C. Rubin Observatory, URL <https://lse-150.lsst.io/>
- [1682] **[TSTN-023]**, Ribeiro, T., Reuter, M., Mills, D., Owen, R., 2020, *DDS slow-down on large scale system.*, Telescope and Site Technical Note TSTN-023, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-023.lsst.io/>
- [1683] **[TSTN-028]**, Ribeiro, T., Clements, A., Mills, D., Reuter, M., Owen, R., 2022, *The past, present and future of the Vera Rubin Observatory Control System Middleware*, Telescope and

Site Technical Note TSTN-028, NSF-DOE Vera C. Rubin Observatory, URL <https://tstn-028.lsst.io/>

- [1684] Ribeiro, T., Owen, R.E., Mills, D.J., et al., 2024, In: Ibsen, J., Chiozzi, G. (eds.) *Software and Cyberinfrastructure for Astronomy VIII*, vol. 13101 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 1310118, doi:10.1117/12.3020002, ADS Link
- [1685] **[TSTN-046]**, Ribeiro, T., Reuter, M., Aranda, S., 2024, *LOVE deployment configuration on k8s*, Telescope and Site Technical Note TSTN-046, Vera C. Rubin Observatory, URL <https://tstn-046.lsst.io/>
- [1686] **[Document-30572]**, Richards, G., Yu, W., Brandt, W.N., et al., 2018, *Testing of LSST AGN Selection Using Rolling Cadences*, Informal Construction Document Document-30572, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-30572>
- [1687] Richards, G.T., Nichol, R.C., Gray, A.G., et al., 2004, *ApJS*, 155, 257 (arXiv:astro-ph/0408505), doi:10.1086/425356, ADS Link
- [1688] Richards, J.W., Starr, D.L., Butler, N.R., et al., 2011, *ApJ*, 733, 10 (arXiv:1101.1959), doi:10.1088/0004-637X/733/1/10, ADS Link
- [1689] Rickman, H., 2001, *Transactions of the International Astronomical Union, Series B*, 24, doi:10.1017/S0251107X00008890, ADS Link
- [1690] Risquez, D., van Leeuwen, F., Brown, A.G.A., 2012, *Experimental Astronomy*, 34, 669, doi:10.1007/s10686-012-9310-5, ADS Link
- [1691] **[PSTN-012]**, Ritz, S., 2019, *LSST Camera Cryostat*, Project Science Technical Note PSTN-012, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-012.lsst.io/>
- [1692] **[PSTN-014]**, Ritz, S., 2019, *LSST Camera Body and Mechanisms*, Project Science Technical Note PSTN-014, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-014.lsst.io/>
- [1693] Rixon G., G.M., 2008, *Single-Sign-On Profile: Authentication Mechanisms*, Tech. rep., IVOA, REC-SSO-1.01
- [1694] **[SCTR-13]**, Roberts, A., 2020, *LW-P58 Ccw + Camera Rotator Interface Verification On Camera Cart Test Plan and Report*, Commissioning Technical Report SCTR-13, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-13.lsst.io/>

- [1695] **[SCTR-12]**, Roberts, A., 2021, *LWV-P64: CCW Functional Re-verification Test Plan and Report*, Commissioning Technical Report SCTR-12, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-12.lsst.io/>
- [1696] **[SCTR-41]**, Roberts, A., 2022, *LWV-P81: Level 3 System Spread Configuration Integration Test Plan and Report*, Commissioning Technical Report SCTR-41, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-41.lsst.io/>
- [1697] **[SITCOMTN-011]**, Roberts, A., Heyer, A., 2021, *CCW/Rotator Synchronous Motion Limit Switch Characterization*, Commissioning Technical Note SITCOMTN-011, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-011.lsst.io/>
- [1698] **[SITCOMTN-016]**, Roberts, A., Drass, H., Stalder, B., 2021, *CCW/Rotator Synchronous Motion Limit Switch Characterization with ComCam*, Commissioning Technical Note SITCOMTN-016, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-016.lsst.io/>
- [1699] **[SITCOMTN-053]**, Roberts, A., Drass, H., Stalder, B., 2022, *CCW/Rotator Synchronous Motion Limit Switch Characterization with ComCam*, Commissioning Technical Note SITCOMTN-053, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-053.lsst.io/>
- [1700] **[RDO-71]**, Roberts, A., Blum, R., Claver, C., et al., 2024, *Rubin Observatory Risk and Opportunity Management Plan*, Data Management Operations Controlled Document RDO-71, NSF-DOE Vera C. Rubin Observatory, URL <https://rdo-71.lsst.io/>
- [1701] Robin, A.C., Reylé, C., Derrière, S., Picaud, S., 2003, *A&A*, 409, 523, doi:10.1051/0004-6361:20031117, ADS Link
- [1702] Robin, A.C., Luri, X., Reylé, C., et al., 2012, *A&A*, 543, A100 (arXiv:1202.0132), doi:10.1051/0004-6361/201118646, ADS Link
- [1703] Robin, A.C., Luri, X., Reylé, C., et al., 2012, *A&A*, 543, A100 (arXiv:1202.0132), doi:10.1051/0004-6361/201118646, ADS Link
- [1704] Roby, W., Wu, X., Ly, L., Goldina, T., 2015, In: Taylor, A.R., Rosolowsky, E. (eds.) *Astronomical Data Analysis Software and Systems XXIV (ADASS XXIV)*, vol. 495 of *Astronomical Society of the Pacific Conference Series*, 417, ADS Link
- [1705] Roby, W., Wu, X., Goldina, T., et al., 2016, In: Chiozzi, G., Guzman, J.C. (eds.) *Software and Cyberinfrastructure for Astronomy IV*, vol. 9913 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, 99130Y, doi:10.1117/12.2233042, ADS Link

- [1706] Roby, W.W., 2016, Firefly: embracing future web technologies, URL <http://dx.doi.org/10.5281/zenodo.>,
Talk at the SPIE Astronomical Telescopes and Instrumentation Conference, Edinburgh, UK,
doi:10.5281/zenodo.
- [1707] **[SITCOMTN-099]**, Rodeghiero, G., 2024, *M2 Cell Rigid Body Motion fault debugging*, Commissioning Technical Note SITCOMTN-099, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-099.lsst.io/>
- [1708] **[SITCOMTN-103]**, Rodeghiero, G., 2024, *M2 no-back driving data analysis*, Commissioning Technical Note SITCOMTN-103, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-103.lsst.io/>
- [1709] **[SITCOMTN-160]**, Rodeghiero, G., 2025, *Stray Light Investigation*, Commissioning Technical Note SITCOMTN-160, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-160.lsst.io/>
- [1710] **[SITCOMTN-151]**, Rodeghiero, G., Giro, E., Rosignoli, L., et al., 2025, *Estimation of the Rubin effective area*, Commissioning Technical Note SITCOMTN-151, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-151.lsst.io/>
- [1711] Roodman, A., Rasmussen, A., Bradshaw, A., et al., 2024, In: Bryant, J.J., Motohara, K., Vernet, J.R.D. (eds.) *Ground-based and Airborne Instrumentation for Astronomy X*, vol. 13096 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 130961S, doi:10.1117/12.3019698, ADS Link
- [1712] Rose, J., Akella, R., Binengar, S., et al., 1995, In: Shaw, R.A., Payne, H.E., Hayes, J.J.E. (eds.) *Astronomical Data Analysis Software and Systems IV*, vol. 77 of Astronomical Society of the Pacific Conference Series, 429, ADS Link
- [1713] Röser, S., Schilbach, E., Schwan, H., et al., 2008, *A&A*, 488, 401 (arXiv:0806.1009), doi:10.1051/0004-6361:200809775, ADS Link
- [1714] **[SITCOMTN-093]**, Rosignoli, L., 2023, *LW-1791 M2 RBP REPEATABILITY TEST*, Commissioning Technical Note SITCOMTN-093, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-093.lsst.io/>
- [1715] **[NIST.SP.800-171r3]**, Ross, R., Pillitteri, V., 2024, Special publication 800-171, protecting controlled unclassified information in nonfederal systems and organizations, URL <https://doi.org/10.6028/NIST.SP.800-171r3>, doi:NIST.SP.800-171r3

- [1716] **[NIST.SP.800-171r2]**, ROSS, R., VISCUSO, P., GUISSANIE, G., DEMPSEY, K., RID-
DLE, M., 2020, Special publication 800-171, protecting controlled unclassified informa-
tion in nonfederal systems and organizations, URL [https://nvlpubs.nist.gov/nistpubs/
SpecialPublications/NIST.SP.800-171r2.pdf](https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-171r2.pdf)
- [1717] Royce, W., 1970, In: Proceedings of IEEE WESCON, 1-9, URL [http://www.cs.umd.edu/
class/spring2003/cmsc838p/Process/waterfall.pdf](http://www.cs.umd.edu/class/spring2003/cmsc838p/Process/waterfall.pdf)
- [1718] Rubin, V.C., Ford, W.K., Jr., 1970, ApJ, 159, 379, doi:10.1086/150317, ADS Link
- [1719] Rubin, V.C., Ford, W.K., Jr., Thonnard, N., 1980, ApJ, 238, 471, doi:10.1086/158003, ADS
Link
- [1720] **[PSTN-019]**, Rubin Observatory Science Pipelines Developers, 2025, *The LSST Sci-
ence Pipelines Software: Optical Survey Pipeline Reduction and Analysis Environment*, Project
Science Technical Note PSTN-019, NSF-DOE Vera C. Rubin Observatory, URL [https://
pstn-019.lsst.io/](https://pstn-019.lsst.io/), doi:10.71929/rubin/2570545
- [1721] **[Document-37228]**, Rubin's Survey Cadence Optimization Committee, Survey
Scheduling Team, 2021, *LSST Cadence Notes Solicitation*, Informal Construction Doc-
ument Document-37228, NSF-DOE Vera C. Rubin Observatory, URL [https://ls.st/
Document-37228](https://ls.st/Document-37228)
- [1722] **[PSTN-053]**, Rubin's Survey Cadence Optimization Committee, Bauer, F.E., Brough, S.,
et al., 2022, *Survey Cadence Optimization Committee's Phase 1 Recommendation*, Project
Science Technical Note PSTN-053, NSF-DOE Vera C. Rubin Observatory, URL [https://
pstn-053.lsst.io/](https://pstn-053.lsst.io/), doi:10.71929/rubin/2584276
- [1723] **[PSTN-055]**, Rubin's Survey Cadence Optimization Committee, Bauer, F.E., Bianco,
F.B., et al., 2023, *Survey Cadence Optimization Committee's Phase 2 Recommendations*,
Project Science Technical Note PSTN-055, NSF-DOE Vera C. Rubin Observatory, URL [https://
pstn-055.lsst.io/](https://pstn-055.lsst.io/), doi:10.71929/rubin/2585249
- [1724] **[PSTN-056]**, Rubin's Survey Cadence Optimization Committee, Bianco, F.B., Jones,
R.L., et al., 2025, *Survey Cadence Optimization Committee's Phase 3 Recommendations*,
Project Science Technical Note PSTN-056, NSF-DOE Vera C. Rubin Observatory, URL [https://
pstn-056.lsst.io/](https://pstn-056.lsst.io/), doi:10.71929/rubin/2585402
- [1725] Rucio, Rucio Distributed Data Management Documentation, URL [http://rucio.cern.
ch/](http://rucio.cern.ch/)

- [1726] **[RTN-051]**, Rumore, M., 2023, *Rubin Observatory Risk Management Tool User Guide*, Technical Note RTN-051, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-051.lsst.io/>
- [1727] **[RTN-076]**, Rumore, M., Guy, L., 2024, *Migration Plan for Construction Project Documentation to Operations*, Technical Note RTN-076, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-076.lsst.io/>
- [1728] **[SITCOMTN-012]**, Rumore, M., Claver, C., Cabrera, D., et al., 2024, *Rubin Observatory Construction Documentation Inventory*, Commissioning Technical Note SITCOMTN-012, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-012.lsst.io/>
- [1729] **[SITCOMTN-014]**, Rumore, M., Claver, C., Cabrera, D., et al., 2024, *Project-wide Documentation Proposal for Rubin Observatory Operations*, Commissioning Technical Note SITCOMTN-014, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-014.lsst.io/>
- [1730] **[PSTN-026]**, Rykoff, E.S., 2019, *LSST Calibration Strategy and Pipelines*, Project Science Technical Note PSTN-026, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-026.lsst.io/>
- [1731] Rykoff, E.S., Tucker, D.L., Burke, D.L., et al., 2023, arXiv e-prints, arXiv:2305.01695 (arXiv:2305.01695), doi:10.48550/arXiv.2305.01695, ADS Link
- [1732] Saha, A., Wang, Z., Matheson, T., et al., 2016, In: Peck, A.B., Seaman, R.L., Benn, C.R. (eds.) *Observatory Operations: Strategies, Processes, and Systems VI*, vol. 9910 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 99100F (arXiv:1611.05914), doi:10.1117/12.2232095, ADS Link
- [1733] **[RTN-084]**, Saha, A., O'Mullane, W., Graham, M., 2025, *Resource Allocation Committee*, Technical Note RTN-084, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-084.lsst.io/>
- [1734] Sahlmann, J., 2012, *Observing exoplanet populations with high-precision astrometry*, Ph.D. thesis, University of Geneva, Astronomical Observatory
- [1735] Salgado, J., González-Núñez, J., Gutiérrez-Sánchez, R., et al., 2019, In: Teuben, P.J., Pound, M.W., Thomas, B.A., Warner, E.M. (eds.) *Astronomical Data Analysis Software and Systems XXVII*, vol. 523 of Astronomical Society of the Pacific Conference Series, 445, ADS Link

- [1736] Salgado, J., Ibarra, A., Ehle, M., et al., 2021, Observation Locator Table Access Protocol Version 1.0, IVOA Recommendation 24 July 2021, doi:10.5479/ADS/bib/2021ivoa.spec.0724S, ADS Link
- [1737] **[DMTN-018]**, Salnikov, A., 2016, *Re-visiting L1 Database Design*, Data Management Technical Note DMTN-018, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-018.lsst.io/>
- [1738] **[DMTN-113]**, Salnikov, A., 2019, *Performance of RDBMS-based PPDB implementation*, Data Management Technical Note DMTN-113, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-113.lsst.io/>
- [1739] **[DMTN-156]**, Salnikov, A., 2020, *Performance of Cassandra-based APDB implementation*, Data Management Technical Note DMTN-156, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-156.lsst.io/>
- [1740] **[DMTN-162]**, Salnikov, A., 2020, *Planning next round of APDB tests*, Data Management Technical Note DMTN-162, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-162.lsst.io/>
- [1741] **[DMTN-184]**, Salnikov, A., 2021, *Testing Cassandra APDB implementation on GCP*, Data Management Technical Note DMTN-184, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-184.lsst.io/>
- [1742] **[DMTN-191]**, Salnikov, A., 2021, *Schema Migration for Butler Registry Database*, Data Management Technical Note DMTN-191, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-191.lsst.io/>
- [1743] **[DMTN-236]**, Salnikov, A., 2022, *ObsCore as a View of Butler Registry Tables*, Data Management Technical Note DMTN-236, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-236.lsst.io/>
- [1744] **[DMTN-268]**, Salnikov, A., 2023, *Data replication between APDB and PPDB*, Data Management Technical Note DMTN-268, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-268.lsst.io/>
- [1745] **[DMTN-269]**, Salnikov, A., 2023, *Database schema versioning for APDB*, Data Management Technical Note DMTN-269, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-269.lsst.io/>
- [1746] **[DMTN-322]**, Salnikov, A., 2025, *Design of APDB replication*, Data Management Technical Note DMTN-322, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-322.lsst.io/>

- [1747] **[DMTN-293]**, Salnikov, A., McCormick, J., 2025, *Current status of APDB and PPDB implementation*, Data Management Technical Note DMTN-293, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-293.lsst.io/>, doi:10.71929/rubin/2586676
- [1748] **[DMTN-256]**, Sánchez, B., 2023, *Status of Difference Image Analysis*, Data Management Technical Note DMTN-256, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-256.lsst.io/>
- [1749] **[DMTN-319]**, Sánchez, B.O., 2025, *DM-49817: Plans for fake injection for AP commissioning*, Data Management Technical Note DMTN-319, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-319.lsst.io/>
- [1750] Sánchez, C., Carrasco Kind, M., Lin, H., et al., 2014, MNRAS, 445, 1482 (arXiv:1406.4407), doi:10.1093/mnras/stu1836, ADS Link
- [1751] **[SITCOMTN-177]**, Sanmartim, D., 2026, *Test*, Commissioning Technical Note SITCOMTN-177, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-177.lsst.io/>
- [1752] Sarro, L.M., Eyer, L., O'Mullane, W., De Ridder, J., 2012, *Astrostatistics and Data Mining*, vol. 2, doi:10.1007/978-1-4614-3323-1, ADS Link
- [1753] **[DMTN-197]**, Saunders, C., 2021, *Streak Masking in DM Image Processing*, Data Management Technical Note DMTN-197, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-197.lsst.io/>, doi:10.71929/rubin/2586496
- [1754] **[SITCOMTN-066]**, Saunders, C., 2023, *SITCOM-716: Encoder Disagreement Study*, Commissioning Technical Note SITCOMTN-066, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-066.lsst.io/>
- [1755] **[SITCOMTN-073]**, Saunders, C., 2023, *Relative Pointing Verification*, Commissioning Technical Note SITCOMTN-073, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-073.lsst.io/>
- [1756] **[DMTN-266]**, Saunders, C., 2024, *Astrometric Calibration in the LSST Pipeline*, Data Management Technical Note DMTN-266, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-266.lsst.io/>, doi:10.71929/rubin/2583846
- [1757] **[DMTN-324]**, Saunders, C., 2025, *Early astrometric residuals characterization of LSST-Cam: Atmospheric turbulences and static sensor effect.*, Data Management Technical Note DMTN-324, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-324.lsst.io/>

- [1758] Schechter, P.L., Levinson, R.S., 2012, In: Stepp, L.M., Gilmozzi, R., Hall, H.J. (eds.) *Ground-based and Airborne Telescopes IV*, vol. 8444 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 844455 (arXiv:1207.2647), doi:10.1117/12.925075, ADS Link
- [1759] Schechter, P.L., Sobel Levinson, R., 2011, *PASP*, 123, 812 (arXiv:1009.0708), doi:10.1086/661111, ADS Link
- [1760] **[DMTN-013]**, Schellart, P., 2016, *Wrapping C++ with Cython*, Data Management Technical Note DMTN-013, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-013.lsst.io/>
- [1761] **[DMTN-014]**, Schellart, P., 2016, *Wrapping C++ with pybind11*, Data Management Technical Note DMTN-014, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-014.lsst.io/>
- [1762] **[DMTN-024]**, Schellart, P., 2016, *Pybind11 coding guidelines*, Data Management Technical Note DMTN-024, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-024.lsst.io/>
- [1763] **[DMTN-043]**, Schellart, P., 2017, *Redesign of afw::math::Statistics*, Data Management Technical Note DMTN-043, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-043.lsst.io/>
- [1764] **[DMTN-056]**, Schellart, P., Bosch, J., 2021, *Butler Redesign Strawman*, Data Management Technical Note DMTN-056, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-056.lsst.io/>
- [1765] **[PSTN-013]**, Schindler, R.H., 2019, *LSST Camera Refrigeration*, Project Science Technical Note PSTN-013, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-013.lsst.io/>
- [1766] Schmitz, M., Baker, K., Chan, B., et al., 2011, In: American Astronomical Society Meeting Abstracts #217, vol. 217 of American Astronomical Society Meeting Abstracts, 344.08, ADS Link
- [1767] Schneider, J., 2005, In: Turon, C., O'Flaherty, K.S., Perryman, M.A.C. (eds.) *ESA SP-576: The Three-Dimensional Universe with Gaia*, 263–266
- [1768] **[LTS-160]**, Schumacher, G., 2022, *TCS to Hexapods and Rotator Interface Control Document*, Telescope & Site Controlled Document LTS-160, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LTS-160>

- [1769] **[LTS-161]**, Schumacher, G., 2022, *TCS to M1M3 Assembly Interface Control Document*, Telescope & Site Controlled Document LTS-161, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LTS-161>
- [1770] **[LTS-162]**, Schumacher, G., 2022, *TCS to M2 Assembly Interface Control Document*, Telescope & Site Controlled Document LTS-162, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LTS-162>
- [1771] **[LSE-62]**, Schumacher, G., Delgado, F., 2019, *LSST Observatory Control System Requirements*, Systems Engineering Controlled Document LSE-62, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-62>
- [1772] Schuman, E., 2004, *At Wal-Mart, Worlds Largest Retail Data Warehouse Gets Even Larger*, URL <http://www.eweek.com/enterprise-apps/at-wal-mart-worlds-largest-retail-data-warehouse-gets-even-larger>
- [1773] Schutt, T., Jarvis, M., Roodman, A., et al., 2025, *The Open Journal of Astrophysics*, 8, 26 (arXiv:2501.05781), doi:10.33232/001c.132299, ADS Link
- [1774] **[Document-26952]**, Science Working Group of the LSST, Strauss, M.A., 2004, *Towards a Design Reference Mission for the Large Synoptic Survey Telescope*, Informal Construction Document Document-26952, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-26952>
- [1775] National Academies of Sciences, E., *Medicine*, 2021, *Pathways to Discovery in Astronomy and Astrophysics for the 2020s*, The National Academies Press, Washington, DC, URL <https://nap.nationalacademies.org/catalog/26141/pathways-to-discovery-in-astronomy-and-astrophysics-for-the-2020s>, doi:10.17226/26141
- [1776] Scott, D., Pierfederici, F., Swaters, R.A., Thomas, B., Valdes, F.G., 2007, In: Shaw, R.A., Hill, F., Bell, D.J. (eds.) *Astronomical Data Analysis Software and Systems XVI*, vol. 376 of *Astronomical Society of the Pacific Conference Series*, 265, ADS Link
- [1777] Seabroke, G.M., Holland, A.D., Burt, D., Robbins, M.S., 2010, *Proc. SPIE*, 7742, 774
- [1778] Seabroke, G.M., Prod'homme, T., Murray, N.J., et al., 2013, *MNRAS*, 430, 3155 (arXiv:1302.1873), doi:10.1093/mnras/stt121, ADS Link
- [1779] Seaman, R., Williams, R., Allan, A., et al., 2011, *Sky Event Reporting Metadata Version 2.0*, IVOA Recommendation 11 July 2011 (arXiv:1110.0523), doi:10.5479/ADS/bib/2011ivoa.spec.0711S, ADS Link

- [1780] **[LTS-88]**, Sebag, J., 2022, *M1M3 Mirror Support Design Requirements Document*, Telescope & Site Controlled Document LTS-88, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LTS-88>
- [1781] **[LSE-60]**, Sebag, J., Krabbendam, V., 2018, *LSST Telescope and Site (TS) Requirements*, Systems Engineering Controlled Document LSE-60, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-60>
- [1782] **[DMTN-216]**, Sedaghat, N., 2023, *Deep Learning Approach to Real-Bogus Classification for LSST Alert Production*, Data Management Technical Note DMTN-216, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-216.lsst.io/>
- [1783] **[DMTN-217]**, Sedaghat, N., 2023, *temp*, Data Management Technical Note DMTN-217, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-217.lsst.io/>
- [1784] **[DMTN-274]**, Sedaghat, N., 2023, *Report on the performance of image differencing from the perspective of the learning-based classifier task*, Data Management Technical Note DMTN-274, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-274.lsst.io/>
- [1785] **[DMTN-272]**, Sedaghat, N., 2024, *Real-bogus classifier – status report*, Data Management Technical Note DMTN-272, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-272.lsst.io/>
- [1786] **[DMTN-335]**, Sedgwick, T.M., Watkins, A.E., Kaviraj, S., 2026, *Quantifying the Performance of the LSST Detection and Deblending Pipeline: Implications for LSB Science and Beyond*, Data Management Technical Note DMTN-335, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-335.lsst.io/>
- [1787] **[LSE-160]**, Selvy, B., 2013, *Verification and Validation Process*, Systems Engineering Controlled Document LSE-160, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-160>
- [1788] **[Document-26273]**, Selvy, B., 2017, *Risk & Opportunity Management Report May 2017*, Informal Construction Document Document-26273, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-26273>
- [1789] Selvy, B.M., Claver, C., Angeli, G., 2014, In: Angeli, G.Z., Dierickx, P. (eds.) *Modeling, Systems Engineering, and Project Management for Astronomy VI*, vol. 9150 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 91500N, doi:10.1117/12.2056773, ADS Link

- [1790] Selvy, B.M., Claver, C., Willman, B., et al., 2016, In: Angeli, G.Z., Dierickx, P. (eds.) Modeling, Systems Engineering, and Project Management for Astronomy VI, vol. 9911 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 99110D, doi:10.1117/12.2233904, ADS Link
- [1791] Selvy, B.M., Roberts, A., Reuter, M., et al., 2018, In: Angeli, G.Z., Dierickx, P. (eds.) Modeling, Systems Engineering, and Project Management for Astronomy VIII, vol. 10705 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 107050U, doi:10.1117/12.2310125, ADS Link
- [1792] **[ITTN-079]**, Seriche, G., 2024, *Hardening Kubernetes Workload*, Information Technology Technical Note ITTN-079, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-079.lsst.io/>
- [1793] **[ITTN-080]**, Seriche, G., 2024, *Software development on Rubin LSST*, Information Technology Technical Note ITTN-080, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-080.lsst.io/>
- [1794] **[LTS-807]**, Serio, A., 2018, *LSST Operations Visualization Environment (LOVE) Requirements*, Telescope & Site Controlled Document LTS-807, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LTS-807>
- [1795] Sérsic, J.L., 1963, Boletín de la Asociación Argentina de Astronomía La Plata Argentina, 6, 41, ADS Link
- [1796] Sersic, J.L., 1968, *Atlas de Galaxias Australes*, Córdoba, Argentina: Observatorio Astronómico, ADS Link
- [1797] Sesar, B., Ivezić, Ž., Grammer, S.H., et al., 2010, ApJ, 708, 717 (arXiv:0910.4611), doi:10.1088/0004-637X/708/1/717, ADS Link
- [1798] Shanks, T., Metcalfe, N., Chehade, B., et al., 2015, MNRAS, 451, 4238 (arXiv:1502.05432), doi:10.1093/mnras/stv1130, ADS Link
- [1799] **[Document-10762]**, Shaw, R., Strauss, M., 2011, *LSST Data Challenge Handbook Version 1.1*, Informal Construction Document Document-10762, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-10762>
- [1800] **[Document-15286]**, Shaw, R.A., 2012, *LSST Data Challenge Handbook: Summer 2012 Data Release*, Informal Construction Document Document-15286, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-15286>

- [1801] **[Document-15299]**, Shaw, R.A., 2013, *LSST Data Challenge Handbook: Winter 2013 Early Data Release*, Informal Construction Document Document-15299, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-15299>
- [1802] Shaw, R.A., Levine, D., Axelrod, T., Laher, R.R., Mannings, V.G., 2010, In: Radziwill, N.M., Bridger, A. (eds.) *Software and Cyberinfrastructure for Astronomy*, vol. 7740 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 77400H, doi:10.1117/12.857293, ADS Link
- [1803] Shaw, R.A., Axelrod, T., Becker, A.C., et al., 2012, In: American Astronomical Society Meeting Abstracts #219, vol. 219 of American Astronomical Society Meeting Abstracts, 156.03, ADS Link
- [1804] **[LDM-226]**, Shaw, R.A., Jurić, M., Becker, A., et al., 2013, *LSST Data Challenge Report: Summer 2012/early-Winter 2013*, Data Management Controlled Document LDM-226, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-226>
- [1805] **[RTN-017]**, (she/her), R.G., 2023, *Data rights and access management plan*, Technical Note RTN-017, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-017.lsst.io/>
- [1806] Sheldon, E.S., Huff, E.M., 2017, *ApJ*, 841, 24 (arXiv:1702.02601), doi:10.3847/1538-4357/aa704b, ADS Link
- [1807] Sheldon, E.S., Becker, M.R., MacCrann, N., Jarvis, M., 2020, *ApJ*, 902, 138 (arXiv:1911.02505), doi:10.3847/1538-4357/abb595, ADS Link
- [1808] Sheldon, E.S., Becker, M.R., Jarvis, M., Armstrong, R., LSST Dark Energy Science Collaboration, 2023, *The Open Journal of Astrophysics*, 6, 17 (arXiv:2303.03947), doi:10.21105/astro.2303.03947, ADS Link
- [1809] Sheppard, S.S., Tholen, D.J., Pokorný, P., et al., 2022, *AJ*, 164, 168 (arXiv:2209.06245), doi:10.3847/1538-3881/ac8cff, ADS Link
- [1810] **[SITCOMTN-045]**, Shugart, A., 2022, *AuxTel Spectrograph Startup Procedure*, Commissioning Technical Note SITCOMTN-045, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-045.lsst.io/>
- [1811] Shupe, D.L., Moshir, M., Li, J., et al., 2005, In: Shopbell, P., Britton, M., Ebert, R. (eds.) *Astronomical Data Analysis Software and Systems XIV*, vol. 347 of Astronomical Society of the Pacific Conference Series, 491, ADS Link
- [1812] Shuster, M.D., 1993, *Journal of the Astronautical Sciences*, 41, 439, ADS Link

- [1813] **[SQR-000]**, Sick, J., 2015, *The LSST DM Technical Note Publishing Platform*, SQuaRE Technical Note SQR-000, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-000.lsst.io/>
- [1814] Sick, J., 2016, LSST DM Community Resources, URL <http://dx.doi.org/10.5281/zenodo.44643>,
NSF Pavilion Talk given at AAS 227., doi:10.5281/zenodo.44643
- [1815] **[LDM-493]**, Sick, J., 2016, *Data Management Documentation Architecture*, Data Management Controlled Document LDM-493, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-493.lsst.io/>
- [1816] **[SQR-006]**, Sick, J., 2016, *The LSST the Docs Platform for Continuous Documentation Delivery*, SQuaRE Technical Note SQR-006, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-006.lsst.io/>
- [1817] **[SQR-013]**, Sick, J., 2016, *LSST DocHub Design*, SQuaRE Technical Note SQR-013, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-013.lsst.io/>
- [1818] **[SQR-020]**, Sick, J., 2018, *Expressing LSST Project Metadata with JSON-LD*, SQuaRE Technical Note SQR-020, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-020.lsst.io/>
- [1819] **[SQR-023]**, Sick, J., 2018, *Design of the notebook-based report system*, SQuaRE Technical Note SQR-023, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-023.lsst.io/>
- [1820] **[SQR-032]**, Sick, J., 2019, *Rendering and testing examples and tutorials in LSST documentation*, SQuaRE Technical Note SQR-032, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-032.lsst.io/>
- [1821] **[SQR-043]**, Sick, J., 2020, *community.lsst.org forum operations guide*, SQuaRE Technical Note SQR-043, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-043.lsst.io/>
- [1822] **[SQR-060]**, Sick, J., 2021, *Design of the Semaphore user broadcast message system for the Rubin Science Platform*, SQuaRE Technical Note SQR-060, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-060.lsst.io/>
- [1823] **[SQR-062]**, Sick, J., 2021, *The Times Square service for publishing parameterized Jupyter Notebooks in the Rubin Science platform*, SQuaRE Technical Note SQR-062, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-062.lsst.io/>
- [1824] **[SQR-065]**, Sick, J., 2022, *Design of Noteburst, a programatic JupyterLab notebook execution service for the Rubin Science Platform*, SQuaRE Technical Note SQR-065, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-065.lsst.io/>

- [1825] **[SQR-075]**, Sick, J., 2023, *A vertical monorepo architecture for FastAPI client-server codebases*, SQuaRE Technical Note SQR-075, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-075.lsst.io/>
- [1826] **[SQR-076]**, Sick, J., 2023, *Shared Pydantic schemas as the basis for Kafka/Avro messages in SQuaRE Roundtable*, SQuaRE Technical Note SQR-076, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-076.lsst.io/>
- [1827] **[SQR-082]**, Sick, J., 2023, *UX for Docs: Documentation Engineering at Rubin*, SQuaRE Technical Note SQR-082, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-082.lsst.io/>
- [1828] **[TESTTR-997]**, Sick, J., 2023, *LWV-TEST Test Test Plan and Report*, TESTTR-997, NSF-DOE Vera C. Rubin Observatory, URL <https://testtr-997.lsst.io/>
- [1829] **[TESTTR-998]**, Sick, J., 2023, *LWV-TEST Test document Test Plan and Report*, TESTTR-998, NSF-DOE Vera C. Rubin Observatory, URL <https://testtr-998.lsst.io/>
- [1830] **[SQR-083]**, Sick, J., 2024, *Patterns for accessing external resources from Times Square notebooks*, SQuaRE Technical Note SQR-083, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-083.lsst.io/>
- [1831] **[SQR-090]**, Sick, J., 2024, *System for collecting user feedback in Rubin documentation*, SQuaRE Technical Note SQR-090, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-090.lsst.io/>
- [1832] **[SQR-086]**, Sick, J., 2025, *Deep linking to data documentation with IVOA DataLink*, SQuaRE Technical Note SQR-086, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-086.lsst.io/>
- [1833] **[SQR-101]**, Sick, J., 2025, *Technical documentation search architecture (2025 review)*, SQuaRE Technical Note SQR-101, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-101.lsst.io/>
- [1834] **[SQR-102]**, Sick, J., 2025, *Building from Squareone: SQuaRE's front-end monorepo*, SQuaRE Technical Note SQR-102, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-102.lsst.io/>
- [1835] **[SQR-112]**, Sick, J., 2026, *Docverse documentation hosting platform design*, SQuaRE Technical Note SQR-112, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-112.lsst.io/>

- [1836] **[SQR-011]**, Sick, J., Economou, F., 2016, *LSST Data Management Communication & Publication Platforms*, SQuaRE Technical Note SQR-011, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-011.lsst.io/>
- [1837] **[SQR-019]**, Sick, J., Fausti, A., 2018, *LSST Verification Framework API Demonstration*, SQuaRE Technical Note SQR-019, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-019.lsst.io/>
- [1838] Sick, J., Courteau, S., Cuillandre, J.C., et al., 2014, *AJ*, 147, 109 (arXiv:1303.6290), doi:10.1088/0004-6256/147/5/109, ADS Link
- [1839] **[DMTN-030]**, Sick, J., Gill, M.S.S., Krughoff, S., Swinbank, J., 2018, *Science Pipelines Documentation Design*, Data Management Technical Note DMTN-030, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-030.lsst.io/>
- [1840] **[ITTN-013]**, Silva, C., 2020, *VLAN Assignments*, Information Technology Technical Note ITTN-013, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-013.lsst.io/>
- [1841] **[ITTN-020]**, Silva, C., 2020, *Summit Service Levels*, Information Technology Technical Note ITTN-020, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-020.lsst.io/>
- [1842] **[ITTN-021]**, Silva, C., 2020, *Base Service Levels*, Information Technology Technical Note ITTN-021, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-021.lsst.io/>
- [1843] **[ITTN-031]**, Silva, C., 2020, *LHN Testing Plan*, Information Technology Technical Note ITTN-031, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-031.lsst.io/>
- [1844] **[ITTN-032]**, Silva, C., 2020, *Level 3 Integration Lab*, Information Technology Technical Note ITTN-032, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-032.lsst.io/>
- [1845] **[ITTN-033]**, Silva, C., 2020, *Notifications Workflow*, Information Technology Technical Note ITTN-033, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-033.lsst.io/>
- [1846] **[ITTN-037]**, Silva, C., 2021, *IT Linux Repo*, Information Technology Technical Note ITTN-037, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-037.lsst.io/>
- [1847] **[ITTN-038]**, Silva, C., 2021, *Cisco ACI Migration*, Information Technology Technical Note ITTN-038, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-038.lsst.io/>
- [1848] **[ITTN-039]**, Silva, C., 2021, *Summit Computer Room Revamp*, Information Technology Technical Note ITTN-039, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-039.lsst.io/>

- [1849] **[ITTN-042]**, Silva, C., 2021, *IT Priorities Planning*, Information Technology Technical Note ITTN-042, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-042.lsst.io/>
- [1850] **[ITTN-030]**, Silva, C., 2022, *Tucson test stand Upgrade*, Information Technology Technical Note ITTN-030, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-030.lsst.io/>
- [1851] **[ITTN-044]**, Silva, C., 2022, *LHN Specifications and Design Documents Catalog*, Information Technology Technical Note ITTN-044, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-044.lsst.io/>
- [1852] **[ITTN-057]**, Silva, C., 2022, *Disaster Recovery - Computing*, Information Technology Technical Note ITTN-057, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-057.lsst.io/>
- [1853] **[ITTN-058]**, Silva, C., 2022, *Disaster Recovery - Infrastructure Support Devices*, Information Technology Technical Note ITTN-058, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-058.lsst.io/>
- [1854] **[ITTN-065]**, Silva, C., 2022, *DevOps Out of Hours Support*, Information Technology Technical Note ITTN-065, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-065.lsst.io/>
- [1855] **[ITTN-067]**, Silva, C., 2022, *Rubin's Integration Guide*, Information Technology Technical Note ITTN-067, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-067.lsst.io/>
- [1856] **[ITTN-055]**, Silva, C., 2023, *Disaster Recovery*, Information Technology Technical Note ITTN-055, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-055.lsst.io/>
- [1857] **[ITTN-056]**, Silva, C., 2023, *Disaster Recovery - Network*, Information Technology Technical Note ITTN-056, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-056.lsst.io/>
- [1858] **[ITTN-069]**, Silva, C., 2023, *Patching Strategy*, Information Technology Technical Note ITTN-069, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-069.lsst.io/>
- [1859] **[ITTN-074]**, Silva, C., 2024, *Pixel Zone Technology Control Plan*, Information Technology Technical Note ITTN-074, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-074.lsst.io/>
- [1860] **[ITTN-077]**, Silva, C., 2024, *Physical Access Controls*, Information Technology Technical Note ITTN-077, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-077.lsst.io/>
- [1861] **[ITTN-081]**, Silva, C., 2024, *Summit Computer Room Cooling System*, Information Technology Technical Note ITTN-081, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-081.lsst.io/>

- [1862] **[ITTN-082]**, Silva, C., 2025, *Long Haul Network Maintenance*, Information Technology Technical Note ITTN-082, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-082.lsst.io/>
- [1863] **[ITTN-083]**, Silva, C., 2025, *DevOps Notifications*, Information Technology Technical Note ITTN-083, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-083.lsst.io/>
- [1864] **[RTN-091]**, Silva, C., 2025, *Rubin at the Summit - observatory cyber infrastructure and security*, Technical Note RTN-091, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-091.lsst.io/>
- [1865] **[ITTN-084]**, Silva, C., 2026, *Chilean DAC*, Information Technology Technical Note ITTN-084, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-084.lsst.io/>
- [1866] **[RTN-049]**, Silva, C., Alexov, A., 2022, *Rubin Out of Hours Support*, Technical Note RTN-049, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-049.lsst.io/>
- [1867] **[ITTN-029]**, Silva, C., Hoblitt, J., 2022, *NCSA test stand relocation*, Information Technology Technical Note ITTN-029, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-029.lsst.io/>
- [1868] **[ITTN-068]**, Silva, C., Hoblitt, J., 2023, *Access Control*, Information Technology Technical Note ITTN-068, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-068.lsst.io/>
- [1869] **[ITTN-070]**, Silva, C., Hoblitt, J., 2023, *Rubin Observability Project*, Information Technology Technical Note ITTN-070, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-070.lsst.io/>
- [1870] **[ITTN-059]**, Silva, C., Ingraham, P., 2022, *Maintenance Window*, Information Technology Technical Note ITTN-059, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-059.lsst.io/>
- [1871] **[ITTN-061]**, Silva, C., Lupton, R., 2022, *Summit Computing Cluster*, Information Technology Technical Note ITTN-061, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-061.lsst.io/>
- [1872] **[ITTN-043]**, Silva, C., Toro, E., Hoblitt, J., Constanzo, J., 2021, *Rubin Network Re-Engineering*, Information Technology Technical Note ITTN-043, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-043.lsst.io/>

- [1873] **[ITTN-040]**, Silva, C., Maulen, G., Tapia, D., 2022, *Camera Fibers*, Information Technology Technical Note ITTN-040, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-040.lsst.io/>
- [1874] Simmhan, Y., Barga, R., van Ingen, C., et al., 2009, In: 2009 42nd Hawaii International Conference on System Sciences, 1–10, doi:10.1109/HICSS.2009.235
- [1875] Simon, J.L., 1983, *A&A*, 120, 197, ADS Link
- [1876] **[SCTR-11]**, Siruno, K., 2020, *LWV-P59 Camera Rotator Functional Re-Verification Test Plan and Report*, Commissioning Technical Report SCTR-11, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-11.lsst.io/>
- [1877] **[SCTR-91]**, Siruno, K., 2023, *LWV-P95: Hexapod Actuator Redesign Verification Test Plan and Report*, Commissioning Technical Report SCTR-91, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-91.lsst.io/>
- [1878] **[RTN-116]**, Siruno, K.B., 2026, *Dome System Verification*, Technical Note RTN-116, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-116.lsst.io/>
- [1879] Sivia, D., 1996, *Data Analysis. A Bayesian Tutorial*, OUP, 1 edn.
- [1880] **[SITCOMTN-134]**, Sjoberg, K., 2024, *CBP Pointing and Ghosting Simulation Notebook*, Commissioning Technical Note SITCOMTN-134, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-134.lsst.io/>
- [1881] Skrutskie, M.F., Cutri, R.M., Stiening, R., et al., 2006, *AJ*, 131, 1163, doi:10.1086/498708, ADS Link
- [1882] SLAC National Accelerator Laboratory, NSF-DOE Vera C. Rubin Observatory, 2024, LSST Commissioning Camera, URL <https://www.osti.gov//servlets/purl/2561361>, doi:10.71929/RUBIN/2561361
- [1883] SLAC National Accelerator Laboratory, NSF-DOE Vera C. Rubin Observatory, 2025, The LSST Camera (LSSTCam), URL <https://www.osti.gov//servlets/purl/2571927>, doi:10.71929/rubin/2571927
- [1884] **[DMTN-086]**, Slater, C., 2018, *Next-to-the-Database Processing Use Cases*, Data Management Technical Note DMTN-086, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-086.lsst.io/>
- [1885] **[DMTN-237]**, Slater, C., 2022, *Rubin Plot Navigator*, Data Management Technical Note DMTN-237, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-237.lsst.io/>

- [1886] **[DMTN-258]**, Slater, C., 2023, *Summer 2023 Crowded Fields Status*, Data Management Technical Note DMTN-258, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-258.lsst.io/>
- [1887] **[RTN-052]**, Slater, C., Guy, L., 2024, *Charge to the Data Release Board*, Technical Note RTN-052, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-052.lsst.io/>
- [1888] **[DMTN-006]**, Slater, C., Jurić, M., Ivezić, Ž., Jones, L., 2016, *False Positive Rates in the LSST Image Differencing Pipeline*, Data Management Technical Note DMTN-006, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-006.lsst.io/>
- [1889] **[LDM-153]**, Slater, C., Mueller, F., van Klaveren, B., Becla, J., 2019, *LSST Database Baseline Schema*, Data Management Controlled Document LDM-153, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-153.lsst.io/>
- [1890] **[PSTN-045]**, Slater, C.T., 2019, *LSST Petascale Distributed Database*, Project Science Technical Note PSTN-045, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-045.lsst.io/>
- [1891] **[DMTN-309]**, Slater, C.T., Jennings, T., 2025, *CM-Service Architecture*, Data Management Technical Note DMTN-309, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-309.lsst.io/>
- [1892] **[LDM-523]**, Slater, C.T., Jones, R.L., Bellm, E., Jurić, M., 2017, *Impact of a Heterogeneous Focal Plane on LSST Image Differencing*, Data Management Controlled Document LDM-523, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-523>
- [1893] Slater, C.T., Ivezić, Ž., Lupton, R.H., 2020, *AJ*, 159, 65 (arXiv:1912.08210), doi:10.3847/1538-3881/ab6166, ADS Link
- [1894] Smith, G.E., 2010, *Reviews of Modern Physics*, 82, 2307, doi:10.1103/RevModPhys.82.2307, ADS Link
- [1895] Smith, K.W., Williams, R.D., Young, D.R., et al., 2019, *Research Notes of the American Astronomical Society*, 3, 26, doi:10.3847/2515-5172/ab020f, ADS Link
- [1896] Smith, R.C., Seaman, R., Kantor, J., Axelrod, T., 2010, In: Silva, D.R., Peck, A.B., Soifer, B.T. (eds.) *Observatory Operations: Strategies, Processes, and Systems III*, vol. 7737 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 77370V, doi:10.1117/12.858322, ADS Link

- [1897] **[Document-11622]**, Smith, W., Vera, V.P., 2011, *Supplementary and Clarifying Agreement between the Universidad de Chile and AURA covering the use of the LSST on Cerro Pachon*, Informal Construction Document Document-11622, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-11622>
- [1898] **[Document-10548]**, Smith, W.S., Kahn, S.M., Sweeney, D.W., Tyson, J.A., Wolff, S.C., 2011, *Fastlane Proposal for Construction of the Large Synoptic Survey Telescope*, Informal Construction Document Document-10548, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-10548>
- [1899] Smolčić, V., Ivezić, Ž., Knapp, G.R., et al., 2004, *ApJ*, 615, L141 (arXiv:astro-ph/0403218), doi:10.1086/426475, ADS Link
- [1900] Snyder, A., Roodman, A., 2020, arXiv e-prints, arXiv:2001.03223 (arXiv:2001.03223), doi:10.48550/arXiv.2001.03223, ADS Link
- [1901] Soderhjelm, S., 2004, *Theoretical modelling of observational double-star distribution functions.*, Tech. rep., ESA, DMS-SS-05
- [1902] Söderhjelm, S., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special Publication, 97, ADS Link
- [1903] Soffel, M., Klioner, S.A., Petit, G., et al., 2003, *AJ*, 126, 2687 (arXiv:astro-ph/0303376), doi:10.1086/378162, ADS Link
- [1904] Software, T., 2005, *TIOBE Programming Community Index*, Tech. rep., TIOBE, URL <http://www.tiobe.com/tiobe-index>
- [1905] Sordo, R., Vallenari, A., Tantaló, R., et al., 2011, In: *Journal of Physics Conference Series*, vol. 328 of *Journal of Physics Conference Series*, 012006, doi:10.1088/1742-6596/328/1/012006, ADS Link
- [1906] **[NIST.800-114]**, Souppaya, M., Scarfone, K., 2016, *COMPUTER SECURITY*, URL <https://doi.org/10.6028/NIST.SP.800-114r1>, doi:10.6028/NIST.SP.800-114r1
- [1907] **[NIST.800-46]**, Souppaya, M., Scarfone, K., 2016, *COMPUTER SECURITY*, URL <https://doi.org/10.6028/NIST.SP.800-46r2>, doi:10.6028/NIST.SP.800-46r2
- [1908] Sozzetti, A., 2005, *PASP*, 117, 1021 (arXiv:astro-ph/0507115), doi:10.1086/444487, ADS Link

- [1909] Sozzetti, A., Casertano, S., Lattanzi, M.G., Spagna, A., 2001, *A&A*, 373, L21 (arXiv:astro-ph/0104391), doi:10.1051/0004-6361:20010788, ADS Link
- [1910] **[RTN-044]**, Speck, D., 2022, *USDF Butler Postgres Design*, Technical Note RTN-044, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-044.lsst.io/>
- [1911] **[DMTN-316]**, Speck, D., 2025, *USDF Rubin Operations Support Model*, Data Management Technical Note DMTN-316, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-316.lsst.io/>
- [1912] Spite, M., 2005, In: Turon, C., O'Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special Publication, 645, ADS Link
- [1913] Springel, V., White, S.D.M., Jenkins, A., et al., 2005, *Nature*, 435, 629 (arXiv:astro-ph/0504097), doi:10.1038/nature03597, ADS Link
- [1914] Spyak, P., Wolfe, W., 1991, *Optical Engineering*, 31, 1746
- [1915] **[PSTN-035]**, Stalder, B., 2020, *Integration, Test and Commissioning Results from LSST Commissioning Camera*, Project Science Technical Note PSTN-035, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-035.lsst.io/>
- [1916] **[SITCOMTN-036]**, Stalder, B., 2022, *Image Quality Control - Concept of Operations*, Commissioning Technical Note SITCOMTN-036, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-036.lsst.io/>
- [1917] Stalder, B., Reil, K., Claver, C., et al., 2020, In: Evans, C.J., Bryant, J.J., Motohara, K. (eds.) *Ground-based and Airborne Instrumentation for Astronomy VIII*, vol. 11447 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 114470L, doi:10.1117/12.2561132, ADS Link
- [1918] Stalder, B., Reil, K., Aguilar, C., et al., 2022, In: Evans, C.J., Bryant, J.J., Motohara, K. (eds.) *Ground-based and Airborne Instrumentation for Astronomy IX*, vol. 12184 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 121840J, doi:10.1117/12.2630184, ADS Link
- [1919] Stalder, B., Munoz, F., Aguilar, C., et al., 2024, In: Marshall, H.K., Spyromilio, J., Usuda, T. (eds.) *Ground-based and Airborne Telescopes X*, vol. 13094 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 1309409, doi:10.1117/12.3019266, ADS Link
- [1920] Stallman, R., 2001, *GNU Coding Standards*, Tech. rep., GNU

- [1921] **[DMTN-099]**, Stephens, C., 2018, *Options for Generating Unique IDs in the LSST Gen3 Butler Registry*, Data Management Technical Note DMTN-099, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-099.lsst.io/>
- [1922] Stetson, P.B., 1996, PASP, 108, 851, doi:10.1086/133808, ADS Link
- [1923] **[NIST.800-60]**, Stine, K., Kissel, R., Barker, W.C., Fahlsing, J., Gulick, J., 2008, INFORMATION SECURITY, 31, URL <https://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-60v1r1.pdf>
- [1924] **[ITTN-053]**, Stockebrand, H., 2022, *Securing VPN service with Multi-Factor Authentication*, Information Technology Technical Note ITTN-053, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-053.lsst.io/>
- [1925] **[ITTN-060]**, Stockebrand, H., 2022, *Network Automation*, Information Technology Technical Note ITTN-060, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-060.lsst.io/>
- [1926] Stone, R.C., 1996, PASP, 108, 1051, doi:10.1086/133831, ADS Link
- [1927] Stonebraker, M., Abadi, D.J., Batkin, A., et al., 2005, In: Proceedings of the 31st International Conference on Very Large Data Bases, VLDB '05, 553–564, VLDB Endowment, URL <http://dl.acm.org/citation.cfm?id=1083592.1083658>
- [1928] Stonebraker, M., Becla, J., Dewitt, D., et al., 2009, In: Conference on Innovative Data Systems Research - CIDR, URL http://www-db.cs.wisc.edu/cidr/cidr2009/Paper_26.pdf
- [1929] **[RDO-051]**, Strauss, M., the Rubin Science Advisory Council, 2023, *Users Committee Charge*, Data Management Operations Controlled Document RDO-051, NSF-DOE Vera C. Rubin Observatory, URL <https://rdo-051.lsst.io/>
- [1930] **[RTN-112]**, Strauss, M.A., Blum, R.D., 2025, *Charge to the Science Advisory Committee*, Technical Note RTN-112, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-112.lsst.io/>
- [1931] Street, R.A., Bowman, M., Saunders, E.S., Boroson, T., 2018, In: Guzman, J.C., Ibsen, J. (eds.) Software and Cyberinfrastructure for Astronomy V, vol. 10707 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 1070711 (arXiv:1806.09557), doi:10.1117/12.2312293, ADS Link
- [1932] **[SITCOMTN-022]**, Stubbs, C., 2021, *Aux Tel Tracking Problem Report Nov 2021*, Commissioning Technical Note SITCOMTN-022, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-022.lsst.io/>

- [1933] **[SITCOMTN-021]**, Stubbs, C., Urbach, E., 2021, *Image Quality Team Report: A First Look at Auxiliary Telescope Tracking*, Commissioning Technical Note SITCOMTN-021, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-021.lsst.io/>
- [1934] **[PSTN-011]**, Stubbs, C.W., 2019, *LSST Camera Rafts*, Project Science Technical Note PSTN-011, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-011.lsst.io/>
- [1935] **[SITCOMTN-038]**, Suberlak, C., 2022, *AuxTel data analysis: images to Zernikes*, Commissioning Technical Note SITCOMTN-038, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-038.lsst.io/>
- [1936] **[SITCOMTN-044]**, Suberlak, C., 2022, *The Sensitivity of Active Optics System Algorithm to Offset Centroid*, Commissioning Technical Note SITCOMTN-044, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-044.lsst.io/>
- [1937] **[SITCOMTN-046]**, Suberlak, C., 2022, *AOS Algorithm for Wavefront Estimation*, Commissioning Technical Note SITCOMTN-046, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-046.lsst.io/>
- [1938] **[SITCOMTN-072]**, Suberlak, C., 2023, *Sensitivity Matrix Calculation for AuxTel*, Commissioning Technical Note SITCOMTN-072, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-072.lsst.io/>
- [1939] **[SITCOMTN-085]**, Suberlak, C., 2023, *Donut stacking vs pairing for wavefront sensing estimation*, Commissioning Technical Note SITCOMTN-085, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-085.lsst.io/>
- [1940] **[SITCOMTN-108]**, Suberlak, C., 2024, *Generating AOS simulations with opSim*, Commissioning Technical Note SITCOMTN-108, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-108.lsst.io/>
- [1941] **[SITCOMTN-139]**, Suberlak, C., 2024, *WET-006: pairing vs stacking with WET-001 data*, Commissioning Technical Note SITCOMTN-139, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-139.lsst.io/>
- [1942] **[SITCOMTN-144]**, Suberlak, C., 2024, *Compare CWFS approaches with simulated WET-001 LsstCam data*, Commissioning Technical Note SITCOMTN-144, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-144.lsst.io/>
- [1943] **[SITCOMTN-146]**, Suberlak, C., 2024, *WET-007 analysis of WET-001 simulation of Lsst-ComCam*, Commissioning Technical Note SITCOMTN-146, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-146.lsst.io/>

- [1944] **[SITCOMTN-156]**, Suberlak, C., 2025, *Number of donut pairs and wavefront retrieval with LsstComCam data*, Commissioning Technical Note SITCOMTN-156, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-156.lsst.io/>
- [1945] **[SITCOMTN-158]**, Suberlak, C., 2025, *WET-006: Pairing vs Stacking with ComCam data*, Commissioning Technical Note SITCOMTN-158, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-158.lsst.io/>
- [1946] **[DMTR-22]**, Suberlak, K., Ivezić, Ž., The PDAC Team, 2017, *Prototype Data Access Center: User Report*, Data Management Test Report DMTR-22, NSF-DOE Vera C. Rubin Observatory, URL <https://lsst.org/DMTR-22>
- [1947] **[DMTN-077]**, Suberlak, K., Slater, C., Ivezić, Ž., 2018, *LSST Fall 2017 Crowded Fields Testing*, Data Management Technical Note DMTN-077, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-077.lsst.io/>
- [1948] **[DMTN-012]**, Sullivan, I., 2016, *StarFast - A Fast Simulation Building Tool for Testing Algorithms*, Data Management Technical Note DMTN-012, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-012.lsst.io/>
- [1949] **[DMTN-019]**, Sullivan, I., 2016, *Dipoles in difference imaging from DCR*, Data Management Technical Note DMTN-019, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-019.lsst.io/>
- [1950] **[DMTN-037]**, Sullivan, I., 2018, *DCR-matched template generation*, Data Management Technical Note DMTN-037, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-037.lsst.io/>
- [1951] **[DMTN-121]**, Sullivan, I., 2019, *Impact of variable seeing on DCR coadd generation*, Data Management Technical Note DMTN-121, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-121.lsst.io/>
- [1952] **[DMTN-171]**, Sullivan, I.S., Bellm, E.C., 2025, *Fall 2020 status of crowded field processing with the LSST Alert Production Pipelines*, Data Management Technical Note DMTN-171, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-171.lsst.io/>, doi:10.71929/rubin/2998003
- [1953] **[DMTN-017]**, Sullivan, I.S., Reiss, D.J., 2015, *Differential Chromatic Refraction: literature overview*, Data Management Technical Note DMTN-017, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-017.lsst.io/>

- [1954] support, D., 2006, *Linux Deployment guide*, Tech. rep., Dell,
<http://support.dell.com/support/edocs/software/appora10/lin10g/en/dg/10g21en0.pdf>
- [1955] **[LPM-55]**, Sweeney, D., McKercher, R., 2013, *Project Quality Assurance Plan*, Project Controlled Document LPM-55, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-55>
- [1956] Sweeney, D., Claver, C., Jacoby, S., et al., 2010, In: Angeli, G.Z., Dierickx, P. (eds.) *Modeling, Systems Engineering, and Project Management for Astronomy IV*, vol. 7738 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 77380P, doi:10.1117/12.857301, ADS Link
- [1957] Swinbank, J., 2014, *Astronomy and Computing*, 7, 12 (arXiv:1409.4805), doi:10.1016/j.ascom.2014.09.001, ADS Link
- [1958] Swinbank, J., 2015, *LSST: Introduction and Data Management Requirements*, URL http://wiki.ivoa.net/internal/IVOA/InterOpJune2015MCD/2015-06_-_LSST_at_IVOA_InterOp.pdf,
Presented at the IVOA Interoperability Meeting, Sesto, Italy
- [1959] Swinbank, J., 2016, *VOEvent Transport Protocol*, URL http://wiki.ivoa.net/internal/IVOA/InterOpMay2016-TDIG/2016-05_-_VTP_at_InterOp.pdf,
Presentation at the Northern Spring IVOA Meeting, South Africa
- [1960] **[DMTR-112]**, Swinbank, J., 2019, *LDM-503-07 (Camera Data Processing) Test Plan and Report*, Data Management Test Report DMTR-112, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-112.lsst.io/>
- [1961] **[DMTR-192]**, Swinbank, J., 2020, *LDM-503-11b: Science Pipelines Fall 2019 Release Test Plan and Report*, Data Management Test Report DMTR-192, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-192.lsst.io/>
- [1962] **[DMTR-14]**, Swinbank, J., Bosch, J., Krughoff, S., 2016, *Characterization Metric Report: Science Pipelines Version 12.0*, Data Management Test Report DMTR-14, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/DMTR-14>
- [1963] **[DMTN-044]**, Swinbank, J.D., 2017, *LSST DM Software Release Considerations*, Data Management Technical Note DMTN-044, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-044.lsst.io/>

- [1964] **[LDM-622]**, Swinbank, J.D., 2018, *Data Management QA Strategy Working Group Charge*, Data Management Controlled Document LDM-622, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-622.lsst.io/>
- [1965] **[DMTR-111]**, Swinbank, J.D., 2019, *LDM-503-09a (Science Pipelines Fall 2018 Release) Test Plan and Report*, Data Management Test Report DMTR-111, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtr-111.lsst.io/>
- [1966] **[LDM-151]**, Swinbank, J.D., Axelrod, T.S., Becker, A.C., et al., 2020, *Data Management Science Pipelines Design*, Data Management Controlled Document LDM-151, NSF-DOE Vera C. Rubin Observatory, URL <https://ldm-151.lsst.io/>, doi:10.71929/rubin/2587108
- [1967] Szalay, A.S., Gray, J., Thakar, A.R., et al., 2002, arXiv e-prints, cs/0202013 (arXiv:cs/0202013), doi:10.48550/arXiv.cs/0202013, ADS Link
- [1968] Szalay, A.S., Gray, J., VandenBerg, J., 2002, In: Tyson, J.A., Wolff, S. (eds.) *Survey and Other Telescope Technologies and Discoveries*, vol. 4836 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 333–338 (arXiv:cs/0208013), doi:10.1117/12.461427, ADS Link
- [1969] Szalay, A.S., Gray, J., Fekete, G., et al., 2007, arXiv e-prints, cs/0701164 (arXiv:cs/0701164), doi:10.48550/arXiv.cs/0701164, ADS Link
- [1970] Szalay, A.S., Bell, G., Vandenberg, J., et al., 2008, *GrayWulf: Scalable Clustered Architecture for Data Intensive Computing*, Tech. Rep. MSR-TR-2008-187, Microsoft, URL <https://www.microsoft.com/en-us/research/publication/graywulf-scalable-clustered-architecture-for-data-intensive-computing/>
- [1971] **[Publication-145]**, Szkody, P., et al., 2011, *Science White Paper for LSST Deep-Drilling Field Observations High Cadence Observations of the Magellanic Clouds and Select Galactic Cluster Fields*, LSST Construction Publication Publication-145, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Publication-145>
- [1972] Tabur, V., 2007, PASA, 24, 189 (arXiv:0710.3618), doi:10.1071/AS07028, ADS Link
- [1973] Taff, L.G., Bucciarelli, B., Lattanzi, M.G., 1990, ApJ, 361, 667, doi:10.1086/169230, ADS Link
- [1974] **[DMTN-338]**, Tanikanti, A., 2026, *USDF Storage Architecture at S3DF*, Data Management Technical Note DMTN-338, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-338.lsst.io/>

- [1975] **[ITTN-072]**, Tapia, D., 2023, *Kubernetes Cluster Deployment*, Information Technology Technical Note ITTN-072, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-072.lsst.io/>
- [1976] **[ITTN-045]**, Tapia, D., Silva, C., 2024, *Summit Onboarding Procedure*, Information Technology Technical Note ITTN-045, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-045.lsst.io/>
- [1977] Tapiador, D., O'Mullane, W., Brown, A.G.A., et al., 2014, *Computer Physics Communications*, 185, 1429, doi:10.1016/j.cpc.2014.02.010, ADS Link
- [1978] **[DMTN-312]**, Taranu, D.S., 2025, *The MultiProFit astronomical source modelling code*, Data Management Technical Note DMTN-312, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-312.lsst.io/>, doi:10.71929/rubin/2584108
- [1979] Taylor, M., 2011, TOPCAT: Tool for OPERations on Catalogues And Tables, *Astrophysics Source Code Library*, record ascl:1101.010, (ascl:1101.010), ADS Link
- [1980] Taylor, M., Boch, T., Fitzpatrick, M., et al., 2012, *Simple Application Messaging Protocol Version 1.3*, IVOA Recommendation 11 April 2012 (arXiv:1110.0528), doi:10.5479/ADS/bib/2012ivoa.spec.1104T, ADS Link
- [1981] team, A.G.F., 2003, *GAIA CCD and Focal Plan Technology Demonstrators: ASTRO FPA General Design Description*, Tech. rep., EADS/Astrium, GAIAFPA.NT.00120.T.ASTR
- [1982] project team, A.S., 2002, *Gaia System Level Technical Reassessment Study*, Tech. rep., EADS Astrium, EF5/FR/PC/038.02
- [1983] team, E.A.G., 2005, *GAIA Definition Study*, Tech. rep., EADS/Astrium, Final Presentation, Noordwijk, June 8, 2005
- [1984] Team, G.P., 2006, *Gaia Mission Implementation Requirement Document*, Tech. rep., ESA, GAIA-EST-RQ-00457
- [1985] Texier, D., 2005, *Note on Science Operations Ground Segment Documentation*, Tech. rep., ESA, SOGS-TN-ESAC-DT-001
- [1986] Thain, D., Tannenbaum, T., Livny, M., 2005, *Concurrency - Practice and Experience*, 17, 323, URL <https://research.cs.wisc.edu/htcondor/doc/condor-practice.pdf>

- [1987] Thakar, A.R., 2008, *Computing in Science and Engineering*, 10, 9, doi:10.1109/MCSE.2008.17, ADS Link
- [1988] Thakar, A.R., Szalay, A.S., O'Mullane, W., et al., 2004, In: *American Astronomical Society Meeting Abstracts*, vol. 205 of *American Astronomical Society Meeting Abstracts*, 113.01, ADS Link
- [1989] Thakar, A.R., Szalay, A., Fekete, G., Gray, J., 2008, *Computing in Science and Engineering*, 10, 30, doi:10.1109/MCSE.2008.15, ADS Link
- [1990] **[LCA-20583]**, Thayer, G., 2024, *Guider Requirements Verification Report*, Camera Controlled Document LCA-20583, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LCA-20583>
- [1991] **[RTN-004]**, The Community Engagement Team, The Operations Executive Team, 2022, *Guidelines for Community Participation in Data Preview 0*, Technical Note RTN-004, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-004.lsst.io/>
- [1992] The Gaia Team, *Science Performance of the Gaia Mission*, URL <https://www.cosmos.esa.int/web/gaia/science-performance>
- [1993] **[ITTN-007]**, Thebo, A., 2020, *Infrastructure Monitoring*, Information Technology Technical Note ITTN-007, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-007.lsst.io/>
- [1994] **[ITTN-008]**, Thebo, A., 2020, *Cerro Pachon/La Serena VPN*, Information Technology Technical Note ITTN-008, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-008.lsst.io/>
- [1995] **[ITTN-009]**, Thebo, A., 2020, *Summit Time Synchronization*, Information Technology Technical Note ITTN-009, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-009.lsst.io/>
- [1996] **[ITTN-010]**, Thebo, A., Hoblitt, J., 2023, *User Identification and Authorization*, Information Technology Technical Note ITTN-010, NSF-DOE Vera C. Rubin Observatory, URL <https://ittn-010.lsst.io/>
- [1997] Tholen, D.J., 1984, *Asteroid Taxonomy from Cluster Analysis of Photometry.*, Ph.D. thesis, University of Arizona
- [1998] **[PSTN-006]**, Thomas, S., 2019, *Performance of the LSST Telescope*, Project Science Technical Note PSTN-006, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-006.lsst.io/>

- [1999] **[SCTR-51]**, Thomas, S., 2022, *LW-P84: Alignment System Verification Test Plan and Report*, Commissioning Technical Report SCTR-51, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-51.lsst.io/>
- [2000] **[SITCOMTN-031]**, Thomas, S., Ingraham, P., 2022, *SIT-Com Observatory Workflows Charge*, Commissioning Technical Note SITCOMTN-031, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-031.lsst.io/>
- [2001] **[RTN-058]**, Thomas, S., O'Mullane, W., 2025, *Simonyi Survey Telescope Name Usage Convention*, Technical Note RTN-058, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-058.lsst.io/>
- [2002] **[SITCOMTN-023]**, Thomas, S., Guy, L., Roberts, A., 2022, *SIT-COM Work Management and Organization*, Commissioning Technical Note SITCOMTN-023, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-023.lsst.io/>
- [2003] Thomas, S., Connolly, A., Crenshaw, J.F., et al., 2023, In: *Adaptive Optics for Extremely Large Telescopes (AO4ELT7)*, 67, doi:10.13009/AO4ELT7-2023-069, ADS Link
- [2004] Thomas, S.J., Chandrasekharan, S., Lotz, P., et al., 2016, In: Hall, H.J., Gilmozzi, R., Marshall, H.K. (eds.) *Ground-based and Airborne Telescopes VI*, vol. 9906 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 99063B, doi:10.1117/12.2231798, ADS Link
- [2005] **[Document-31100]**, Thomson, J.R., 2019, *LSST Benchmarking of Qserv and BigQuery*, Informal Construction Document Document-31100, NSF-DOE Vera C. Rubin Observatory, URL <https://lsst.io/Document-31100>
- [2006] **[SQR-015]**, Thornton, A., 2017, *Creating Microservices for api.lsst.codes*, SQuaRE Technical Note SQR-015, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-015.lsst.io/>
- [2007] **[SQR-052]**, Thornton, A., 2021, *Proposal for privilege separation in RSP Notebook Aspect containers*, SQuaRE Technical Note SQR-052, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-052.lsst.io/>
- [2008] **[SQR-054]**, Thornton, A., 2021, *Moving RSP Interactive Notebook containers to conda*, SQuaRE Technical Note SQR-054, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-054.lsst.io/>
- [2009] **[SQR-064]**, Thornton, A., 2022, *The sciplat-lab build process*, SQuaRE Technical Note SQR-064, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-064.lsst.io/>

- [2010] **[SQR-070]**, Thornton, A., 2022, *A Telegraf Operator for Rubin Phalanx Applications*, SQuaRE Technical Note SQR-070, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-070.lsst.io/>
- [2011] **[SQR-078]**, Thornton, A., 2023, *User Fileservers in the RSP*, SQuaRE Technical Note SQR-078, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-078.lsst.io/>
- [2012] **[DMTN-112]**, Thornton, A., Allbery, R., 2020, *LSST DM Vault*, Data Management Technical Note DMTN-112, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-112.lsst.io/>
- [2013] **[SQR-059]**, Thornton, A.J., 2025, *RSP Notebook container tag conventions*, SQuaRE Technical Note SQR-059, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-059.lsst.io/>
- [2014] **[SQR-098]**, Thornton, A.J., 2025, *File Storage Options at Google Cloud*, SQuaRE Technical Note SQR-098, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-098.lsst.io/>
- [2015] **[SQR-106]**, Thornton, A.J., 2025, *Multiplatform (amd64/arm64) builds for SQuaRE services*, SQuaRE Technical Note SQR-106, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-106.lsst.io/>
- [2016] **[SQR-110]**, Thornton, A.J., 2026, *Ghostwriter*, SQuaRE Technical Note SQR-110, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-110.lsst.io/>
- [2017] **[SQR-088]**, Thornton, A.J., Economou, F., Allbery, R., 2024, *Peeling apart the Pythons: Structure of Nublado images*, SQuaRE Technical Note SQR-088, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-088.lsst.io/>
- [2018] **[DMTN-066]**, Thrush, S., 2017, *Memory Needs of Pipeline tasks*, Data Management Technical Note DMTN-066, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-066.lsst.io/>
- [2019] **[DMTN-161]**, Thrush, S., 2020, *Node Utilization for HSC-RC2 Reprocessing Jobs*, Data Management Technical Note DMTN-161, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-161.lsst.io/>
- [2020] **[DMTN-004]**, Thukral, V., 2016, *Debugging in Docker Containers*, Data Management Technical Note DMTN-004, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-004.lsst.io/>
- [2021] **[DMTN-009]**, Thukral, V., 2016, *Vertical-partition Join Performance in MySQL*, Data Management Technical Note DMTN-009, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-009.lsst.io/>

- [2022] **[DMTR-16]**, Thukral, V., 2017, *Qserv Fall 16 Large Scale Tests/KPMs*, Data Management Test Report DMTR-16, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/DMTR-16>
- [2023] **[DMTR-17]**, Thukral, V., 2018, *Qserv Fall 17 Large Scale Tests/KPMs*, Data Management Test Report DMTR-17, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/DMTR-17>
- [2024] **[PSTN-009]**, Tiago, R., 2019, *LSST Observing System Software Architecture*, Project Science Technical Note PSTN-009, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-009.lsst.io/>
- [2025] **[PSTN-007]**, Tiago, R., 2020, *The LSST Scheduler Overview and Performance*, Project Science Technical Note PSTN-007, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-007.lsst.io/>
- [2026] TokuTek, 2013, TokuDB: Scalable High Performance for MySQL and MariaDB Databases, URL <https://web.archive.org/web/20130819012209/http://www.tokutek.com/wp-content/uploads/2013/04/Tokutek-White-Paper.pdf>
- [2027] Tomaney, A.B., Crofts, A.P.S., 1996, *AJ*, 112, 2872 (arXiv:astro-ph/9610066), doi:10.1086/118228, ADS Link
- [2028] Tommaney, J., 2009, Calpont: Open source columnar storage engine for scalable mysql, URL <https://web.archive.org/web/20090429121116/http://www.mysqlconf.com/mysql2009/public/schedule/detail/8997>
- [2029] **[DMTN-047]**, Tommaney, J., Becla, J., Lim, K.T., Wang, D., 2011, *Tests with InfiniDB*, Data Management Technical Note DMTN-047, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-047.lsst.io/>
- [2030] Tonry, J.L., Denneau, L., Flewelling, H., et al., 2018, *ApJ*, 867, 105 (arXiv:1809.09157), doi:10.3847/1538-4357/aae386, ADS Link
- [2031] Tonry, J.L., Denneau, L., Heinze, A.N., et al., 2018, *PASP*, 130, 064505 (arXiv:1802.00879), doi:10.1088/1538-3873/aabadf, ADS Link
- [2032] TOP500, URL <http://www.top500.org>, TOP500 Supercomputer Sites
- [2033] **[SITCOMTN-123]**, Toribio San Cipriano, L., 2024, *TMA Capacitor Bank discharge vs Acceleration profiles*, Commissioning Technical Note SITCOMTN-123, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-123.lsst.io/>

- [2034] **[RTN-026]**, Tucker, D.L., 2022, *Validation Tests of the DP0.1 TAPserver on IDF*, Technical Note RTN-026, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-026.lsst.io/>
- [2035] Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.), 2005, *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special Publication, ADS Link
- [2036] Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.), 2005, *The Three-Dimensional Universe with Gaia*, vol. 576 of ESA Special Publication, ADS Link
- [2037] Tyson, J.A., Roat, C., Bosch, J., Wittman, D., 2008, In: Argyle, R.W., Bunclark, P.S., Lewis, J.R. (eds.) *Astronomical Data Analysis Software and Systems XVII*, vol. 394 of *Astronomical Society of the Pacific Conference Series*, 107 (arXiv:0808.3425), doi:10.48550/arXiv.0808.3425, ADS Link
- [2038] **[LSE-63]**, Tyson, T., DQA Team, Science Collaboration, 2017, *LSST Data Quality Assurance Plan*, Systems Engineering Controlled Document LSE-63, NSF-DOE Vera C. Rubin Observatory, URL <https://lse-63.lsst.io/>
- [2039] **[DMTN-221]**, Tzanidakis, A., Bellm, E.C., 2025, *Periodicity Analysis in Alert Production*, Data Management Technical Note DMTN-221, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-221.lsst.io/>, doi:10.71929/rubin/2998097
- [2040] Ulin, T., 2013, *Driving MySQL Innovation*, Percona Live: MySQL Conference and Expo, URL <https://www.youtube.com/watch?v=0pHTV59I1gs>
- [2041] Unknown, 1987, *Telemetry Summary of Concept and Rationale, Green Book*, Tech. rep., Consultative Committee for Space Data Systems, CCSDS 100.0-G-1, <http://www.ccsds.org/documents/100x0g1.pdf>
- [2042] Unknown, 2000, *Packet Telemetry, Blue Book*, Tech. rep., Consultative Committee for Space Data Systems, CCSDS 102.0-B-5, <http://www.ccsds.org/documents/102x0b5.pdf>
- [2043] Unknown, 2002, *Time Code Formats, Blue Book*, Tech. rep., Consultative Committee for Space Data Systems, CCSDS 301.0-B-3, <http://www.ccsds.org/documents/301x0b3.pdf>
- [2044] Unknown, 2002, *Telemetry Channel Coding, Blue Book*, Tech. rep., Consultative Committee for Space Data Systems, CCSDS 101.0-B-6, <http://www.ccsds.org/documents/101x0b6.pdf>

- [2045] Unknown, 2003, *Telemetric and Command Data Specification*, Tech. rep., Object Management Group — Space Domain Task Force, URL <http://www.omg.org/docs/space/03-03-12.pdf>,
space/2003-03-04
- [2046] **[LDM-532]**, Unknown, 2017, *NCSA Enclave Test Specification*, Data Management Controlled Document LDM-532, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-532>
- [2047] **[LDM-535]**, Unknown, 2017, *Data Backbone Test Specification*, Data Management Controlled Document LDM-535, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-535>
- [2048] **[LDM-536]**, Unknown, 2017, *Data Backbone Data Services Test Specification*, Data Management Controlled Document LDM-536, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-536>
- [2049] **[LDM-537]**, Unknown, 2017, *Data Backbone Infrastructure Test Specification*, Data Management Controlled Document LDM-537, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-537>
- [2050] **[LDM-539]**, Unknown, 2017, *Data Access Center Enclave Test Specification*, Data Management Controlled Document LDM-539, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-539>
- [2051] **[LDM-541]**, Unknown, 2017, *Commissioning Cluster Enclave Test Specification*, Data Management Controlled Document LDM-541, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-541>
- [2052] **[SITCOMTN-034]**, Urbach, E., 2022, *Image Quality Team Work Repository*, Commissioning Technical Note SITCOMTN-034, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-034.lsst.io/>
- [2053] **[SITCOMTN-040]**, Urbach, E., 2022, *Aux Tel Accelerometer Analysis*, Commissioning Technical Note SITCOMTN-040, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-040.lsst.io/>
- [2054] **[SITCOMTN-041]**, Urbach, E., 2022, *AuxTel Anemometer Analysis*, Commissioning Technical Note SITCOMTN-041, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-041.lsst.io/>

- [2055] **[SITCOMTN-055]**, Urbach, E., 2023, *AuxTel Shack Hartmann Wavefront Sensor Analysis*, Commissioning Technical Note SITCOMTN-055, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-055.lsst.io/>
- [2056] **[SITCOMTN-060]**, Urbach, E., 2023, *Measurements of AuxTel Astigmatism*, Commissioning Technical Note SITCOMTN-060, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-060.lsst.io/>
- [2057] **[SITCOMTN-063]**, Urbach, E., 2023, *TMA 3.5 degree offset performance*, Commissioning Technical Note SITCOMTN-063, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-063.lsst.io/>
- [2058] **[SCTR-111]**, Urbach, E., 2025, *System-level Science Verification Acceptance Test Campaign: Throughput for Focused Light Test Plan and Report*, Commissioning Technical Report SCTR-111, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-111.lsst.io/>
- [2059] **[SITCOMTN-106]**, Urbach, E.K., 2024, *Time Synchronization for the CBP Calibration System*, Commissioning Technical Note SITCOMTN-106, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-106.lsst.io/>
- [2060] **[SITCOMTN-171]**, Urbach, E.K., 2025, *The M1M3 Thermal Control System*, Commissioning Technical Note SITCOMTN-171, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-171.lsst.io/>
- [2061] **[SITCOMTN-152]**, Urbach, E.K., Fagrelus, P., Mueller, F., Amouroux, N., 2025, *Collimated Beam Projector Installation and ComCam Testing*, Commissioning Technical Note SITCOMTN-152, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-152.lsst.io/>
- [2062] **[CTN-003]**, Utsumi, Y., Schutt, T., Liang, S., et al., 2026, *Configuring the PTP setting on the MOXA network switch*, Camera Technical Note CTN-003, NSF-DOE Vera C. Rubin Observatory, URL <https://ctn-003.lsst.io/>
- [2063] Vagg, D., O'Callaghan, D., O'Hógáin, F., et al., 2016, In: Chiozzi, G., Guzman, J.C. (eds.) *Software and Cyberinfrastructure for Astronomy IV*, vol. 9913 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 99131V (arXiv:1605.09287), doi:10.1117/12.2233619, ADS Link
- [2064] Vagg, D., O'Callaghan, D., O'Hógáin, F., et al., 2016, In: Chiozzi, G., Guzman, J.C. (eds.) *Software and Cyberinfrastructure for Astronomy IV*, vol. 9913 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 99131V (arXiv:1605.09287), doi:10.1117/12.2233619, ADS Link

- [2065] **[Gaia-NT-32000-115-CNES]**, Valadier, J.C., 2008, *Etude de risque EBIOS du systeme CNES-DPC (Limited distribution)*,
Gaia-NT-32000-115-CNES
- [2066] Valentijn, E.A., McFarland, J.P., Snigula, J., et al., 2007, In: Shaw, R.A., Hill, F., Bell, D.J. (eds.) *Astronomical Data Analysis Software and Systems XVI*, vol. 376 of *Astronomical Society of the Pacific Conference Series*, 491 (arXiv:astro-ph/0702189), doi:10.48550/arXiv.astro-ph/0702189, ADS Link
- [2067] van Dokkum, P.G., 2001, *PASP*, 113, 1420 (arXiv:astro-ph/0108003), doi:10.1086/323894, ADS Link
- [2068] **[LDM-131]**, van Dyk, S., Levine, D., 2013, *Science User Interface and Science User Tools Conceptual Design*, Data Management Controlled Document LDM-131, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LDM-131>
- [2069] **[DMTN-100]**, van Klaveren, B., 2018, *Namespacing Database Objects*, Data Management Technical Note DMTN-100, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-100.lsst.io/>
- [2070] **[DMTN-138]**, van Klaveren, B., 2019, *Building and Distributing LSST Software with conda and conda-forge*, Data Management Technical Note DMTN-138, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-138.lsst.io/>
- [2071] **[DMTN-094]**, van Klaveren, B., 2022, *LSP Authentication Design*, Data Management Technical Note DMTN-094, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-094.lsst.io/>
- [2072] **[DMTN-116]**, van Klaveren, B., 2022, *LSP Authentication Implementation*, Data Management Technical Note DMTN-116, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-116.lsst.io/>
- [2073] van Leeuwen, F., 1997, *Space Sci. Rev.*, 81, 201, doi:10.1023/A:1005081918325, ADS Link
- [2074] van Leeuwen, F., 2005, *A&A*, 439, 805 (arXiv:astro-ph/0505431), doi:10.1051/0004-6361:20053192, ADS Link
- [2075] van Leeuwen, F., 2007, *Hipparcos, the New Reduction of the Raw Data*, vol. 350, doi:10.1007/978-1-4020-6342-8, ADS Link

- [2076] van Leeuwen, F., Fantino, E., 2005, *A&A*, 439, 791 (arXiv:astro-ph/0505432), doi:10.1051/0004-6361:20053193, ADS Link
- [2077] Vande Putte, D., Smith, R.C., Hawkins, N.A., Martin, J.S., 2003, *MNRAS*, 342, 151 (arXiv:astro-ph/0302507), doi:10.1046/j.1365-8711.2003.06524.x, ADS Link
- [2078] VanderPlas, J., Connolly, A.J., Ivezić, Ž., Gray, A., 2012, In: 2012 Conference on Intelligent Data Understanding, 47–54, doi:10.1109/CIDU.2012.6382200
- [2079] VanderPlas, J.T., Ivezić, Ž., 2015, *ApJ*, 812, 18 (arXiv:1502.01344), doi:10.1088/0004-637X/812/1/18, ADS Link
- [2080] Vecchiato, A., Lattanzi, M.G., Bucciarelli, B., et al., 2003, *A&A*, 399, 337 (arXiv:astro-ph/0301323), doi:10.1051/0004-6361:20021785, ADS Link
- [2081] **[SITCOMTN-143]**, Venegas, P., Kang, Y., Quint, B.C., Park, H., 2025, *Brake test analysis*, Commissioning Technical Note SITCOMTN-143, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-143.lsst.io/>
- [2082] **[SITCOMTN-149]**, Vera C. Rubin Observatory, 2025, *An Interim Report on the LSSTCom-Cam On-Sky Campaign*, Commissioning Technical Note SITCOMTN-149, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-149.lsst.io/>, doi:10.71929/rubin/2574402
- [2083] **[RTN-095]**, Vera C. Rubin Observatory Team, 2026, *The Vera C. Rubin Observatory Data Preview 1*, Technical Note RTN-095, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-095.lsst.io/>, doi:10.71929/rubin/2570536
- [2084] **[RTN-114]**, Vera C. Rubin Observatory Team, 2026, *Alert Production with the Vera C. Rubin Observatory*, Technical Note RTN-114, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-114.lsst.io/>, doi:10.71929/rubin/3019817
- [2085] **[RTN-115]**, Vera C. Rubin Observatory Team, 2026, *The Vera C. Rubin Observatory Data Preview 2*, Technical Note RTN-115, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-115.lsst.io/>
- [2086] **[RTN-027]**, Verification, T.D., team:, V., MacArthur, L., et al., 2023, *Validation of the DP0.2 Processing*, Technical Note RTN-027, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-027.lsst.io/>
- [2087] Véron-Cetty, M.P., Véron, P., 2010, *A&A*, 518, A10, doi:10.1051/0004-6361/201014188, ADS Link

- [2088] **[RTN-104]**, Villarreal, A.S., Olsen, K., 2025, *Guidance on Establishing IDAC Data Transfer Channels*, Technical Note RTN-104, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-104.lsst.io/>
- [2089] Vlemmings, W.H.T., Chatterjee, S., Briskin, W.F., et al., 2005, *Mem. Soc. Ast. Italiana*, 76, 531 (arXiv:astro-ph/0509025), doi:10.48550/arXiv.astro-ph/0509025, ADS Link
- [2090] van der Vorst, H., 2003, *Iterative Krylov Methods for Large Linear Systems*, Cambridge University Press
- [2091] Vosteen, L.L.A., Draaisma, F., van Werkhoven, W.P., et al., 2009, In: Warren, P.G., Marshall, C.J., Tyson, R.K., et al. (eds.) *Astronomical and Space Optical Systems*, vol. 7439 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 743914, doi:10.1117/12.825240, ADS Link
- [2092] Vosteen, L.L.A., Draaisma, F., van Werkhoven, W.P., et al., 2009, In: Warren, P.G., Marshall, C.J., Tyson, R.K., et al. (eds.) *Astronomical and Space Optical Systems*, vol. 7439 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 743914, doi:10.1117/12.825240, ADS Link
- [2093] **[SQR-094]**, Voutsinas, S., 2024, *TAP Query History via UWS*, SQuaRE Technical Note SQR-094, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-094.lsst.io/>
- [2094] **[SQR-097]**, Voutsinas, S., 2025, *TAP over QServ using an event-based architecture*, SQuaRE Technical Note SQR-097, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-097.lsst.io/>
- [2095] **[SQR-099]**, Voutsinas, S., 2025, *Breakdown of adaptations to the CADC TAP Service for the RSP*, SQuaRE Technical Note SQR-099, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-099.lsst.io/>
- [2096] **[SQR-105]**, Voutsinas, S., 2025, *Adding VOParquet serializer to TAP Service (qserv-kafka)*, SQuaRE Technical Note SQR-105, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-105.lsst.io/>
- [2097] **[SQR-107]**, Voutsinas, S., 2025, *TAP_SCHEMA Migration to CloudSQL - Architecture & Implementation Breakdown*, SQuaRE Technical Note SQR-107, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-107.lsst.io/>
- [2098] **[SQR-109]**, Voutsinas, S., 2025, *BigQuery Kafka-based TAP service*, SQuaRE Technical Note SQR-109, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-109.lsst.io/>

- [2099] **[SQR-114]**, Voutsinas, S., 2026, *Design of an Alert Retrieval Service in the RSP*, SQuaRE Technical Note SQR-114, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-114.lsst.io/>
- [2100] **[SQR-095]**, Voutsinas, S., Jenness, T., 2024, *SIaV2 over Butler FastAPI service*, SQuaRE Technical Note SQR-095, NSF-DOE Vera C. Rubin Observatory, URL <https://sqr-095.lsst.io/>
- [2101] Vuerli, C., O'Mullane, W., 2000, *DBMS-COTS test week report*, Tech. rep., ESA, PL-COM-OAT-TN-009
- [2102] Vuillermet, M., Billon-Lanfrey, D., Reibel, Y., et al., 2012, Proc. SPIE 8353, Infrared Technology and Applications XXXVIII, 38, 83532, doi:10.1117/12.921868
- [2103] Waas, F.M., 2009, In: Castellanos, M., Dayal, U., Sellis, T. (eds.) *Business Intelligence for the Real-Time Enterprise: Second International Workshop, BIRTE 2008*, Auckland, New Zealand, August 24, 2008, Revised Selected Papers, 89–96, Springer Berlin Heidelberg, Berlin, Heidelberg, URL <http://www.greenplum.com/resources/>, doi:10.1007/978-3-642-03422-0_7
- [2104] Wainer, T.M., Davenport, J.R.A., Bellm, E.C., et al., 2025, *Research Notes of the American Astronomical Society*, 9, 171 (arXiv:2507.03228), doi:10.3847/2515-5172/adecef, ADS Link
- [2105] **[SITCOMTN-136]**, Walter, C., 2025, *Absolute Observatory Timing Calibration using Geosynchronous Satellites*, Commissioning Technical Note SITCOMTN-136, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-136.lsst.io/>
- [2106] Wang, D.L., Monkewitz, S.M., Lim, K.T., Becla, J., 2011, In: *State of the Practice Reports, SC '11*, 12:1–12:11, ACM, New York, NY, USA, URL <http://doi.acm.org/10.1145/2063348.2063364>, doi:10.1145/2063348.2063364
- [2107] Wang, D.L., Monkewitz, S.M., Lim, K.T., Becla, J., 2011, In: *State of the Practice Reports, SC '11*, 12:1–12:11, ACM, New York, NY, USA, doi:10.1145/2063348.2063364
- [2108] **[RTN-015]**, Wang, M., 2023, *Brighter-Fatter Correction GPU Optimization Using CUDA C/C++*, Technical Note RTN-015, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-015.lsst.io/>
- [2109] Warell, J., Lagerkvist, C.I., 2007, *A&A*, 467, 749, doi:10.1051/0004-6361:20065064, ADS Link

- [2110] **[DMTN-192]**, Waters, C., 2023, *Visualization of Calibration Verification*, Data Management Technical Note DMTN-192, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-192.lsst.io/>
- [2111] **[DMTN-233]**, Waters, C., 2023, *Queries for Calibration Quality Monitoring*, Data Management Technical Note DMTN-233, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-233.lsst.io/>
- [2112] **[DMTN-262]**, Waters, C., 2023, *Integrating Calibration Products Into the QA and Visualization System*, Data Management Technical Note DMTN-262, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-262.lsst.io/>
- [2113] **[SCTR-114]**, Waters, C., 2025, *System-level Science Verification Acceptance Test Campaign: Instrument Signature Removal and Detector Characterization Test Plan and Report*, Commissioning Technical Report SCTR-114, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-114.lsst.io/>
- [2114] **[DMTN-148]**, Waters, C.Z., 2021, *DM Calibration Products*, Data Management Technical Note DMTN-148, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-148.lsst.io/>
- [2115] **[SITCOMTN-167]**, Waters, C.Z., 2025, *Auxiliary Calibration Products for Rubin Observatory*, Commissioning Technical Note SITCOMTN-167, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-167.lsst.io/>
- [2116] **[DMTN-222]**, Waters, C.Z., Rykoff, E.S., 2025, *Calibration Generation, Verification, Acceptance, and Certification*, Data Management Technical Note DMTN-222, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-222.lsst.io/>, doi:10.71929/rubin/2586498
- [2117] Waters, C.Z., Magnier, E.A., Price, P.A., et al., 2020, *ApJS*, 251, 4 (arXiv:1612.05245), doi:10.3847/1538-4365/abb82b, ADS Link
- [2118] Wertz(Editor), J.R., 1978, *Spacecraft Attitude Determination and Control*, Kluwer Academic Publishers, 1 edn.
- [2119] Whitaker, K.E., Ashas, M., Illingworth, G., et al., 2019, *ApJS*, 244, 16 (arXiv:1908.05682), doi:10.3847/1538-4365/ab3853, ADS Link
- [2120] **[RTN-054]**, White, B., 2023, *Data Retention Plan*, Technical Note RTN-054, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-054.lsst.io/>
- [2121] **[RTN-059]**, White, B., 2023, *Rubin Data Retention Implementation Strategy*, Technical Note RTN-059, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-059.lsst.io/>

- [2122] Wickham, H., 2014, *Journal of Statistical Software, Articles*, 59, 1, URL <https://www.jstatsoft.org/v059/i10>, doi:10.18637/jss.v059.i10
- [2123] Wieprecht, E., Brumfit, J., Bakker, J., et al., 2004, In: Ochsenein, F., Allen, M.G., Egret, D. (eds.) *Astronomical Data Analysis Software and Systems (ADASS) XIII*, vol. 314 of *Astronomical Society of the Pacific Conference Series*, 376, ADS Link
- [2124] Wilkinson, M.I., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *The Three-Dimensional Universe with Gaia*, vol. 576 of *ESA Special Publication*, 651, ADS Link
- [2125] Wilkinson, M.I., Evans, N.W., 1999, *MNRAS*, 310, 645 (arXiv:astro-ph/9906197), doi:10.1046/j.1365-8711.1999.02964.x, ADS Link
- [2126] Wilkinson, M.I., Vallenari, A., Turon, C., et al., 2005, *MNRAS*, 359, 1306 (arXiv:astro-ph/0506083), doi:10.1111/j.1365-2966.2005.09012.x, ADS Link
- [2127] Will, C., 1993, *Theory and experiment in gravitational physics*, Cambridge University Press, 2 edn.
- [2128] **[LPM-261]**, Willman, B., Graham, M., O’Mullane, W., Petravick, D., 2018, *Access Policy for LSST Data and Data Access Center*, Project Controlled Document LPM-261, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-261>, Superseded by RDO-13
- [2129] **[SITCOMTN-159]**, Wilson, T.J., Naylor, T., 2025, *Determining the Accuracy and Precision of Astrometric Positions and Covariances from the LSST Science Pipelines Using Rubin’s Operations Rehearsal 3 Data*, Commissioning Technical Note SITCOMTN-159, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-159.lsst.io/>
- [2130] **[SITCOMTN-180]**, Wilson, T.J., Naylor, T., 2026, *Determining the Accuracy and Precision of Astrometric Positions and Covariances from the LSST Science Pipelines and the Vera C. Rubin Observatory Using LSST’s Data Preview 1*, Commissioning Technical Note SITCOMTN-180, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-180.lsst.io/>
- [2131] Windmark, F., Lindegren, L., Hobbs, D., 2011, *A&A*, 530, A76 (arXiv:1104.2348), doi:10.1051/0004-6361/201116929, ADS Link
- [2132] **[LSE-279]**, Withers, A., 2017, *Concept of Operations for Unified LSST Authentication and Authorization Services*, Systems Engineering Controlled Document LSE-279, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LSE-279>

- [2133] **[PSTN-010]**, Wolfe, J., 2019, *LSST Camera Optics*, Project Science Technical Note PSTN-010, NSF-DOE Vera C. Rubin Observatory, URL <https://psn-010.lsst.io/>
- [2134] **[Document-15077]**, Wolff, S., 2013, *LSST Project Overview*, Informal Construction Document Document-15077, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-15077>
- [2135] **[LPM-73]**, Wolff, S., 2013, *Operations Plan*, Project Controlled Document LPM-73, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/LPM-73>
- [2136] **[Document-13380]**, Wolff, S., Kahn, S., 2013, *Data Rights and Data Management Policy*, Informal Construction Document Document-13380, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-13380>
- [2137] **[Document-10549]**, Wolff, S.C., Kahn, S.M., Krabbendam, V.L., Sweeney, D.W., Tyson, J.A., 2011, *Proposal to the National Science Foundation*, Informal Construction Document Document-10549, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-10549>
- [2138] **[DMTN-008]**, Wood-Vasey, M., 2016, *Introducing validate_drp: Calculate SRD Key Performance Metrics for an output repository*, Data Management Technical Note DMTN-008, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-008.lsst.io/>
- [2139] **[DMTR-15]**, Wood-Vasey, M., Swinbank, J., 2017, *Characterization Metric Report: Science Pipelines Version 13.0*, Data Management Test Report DMTR-15, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/DMTR-15>
- [2140] **[DMTN-091]**, Wood-Vasey, M., Bellm, E., Bosch, J., et al., 2024, *Test Datasets for Scientific Performance Monitoring*, Data Management Technical Note DMTN-091, NSF-DOE Vera C. Rubin Observatory, URL <https://dmtn-091.lsst.io/>
- [2141] Wood-Vasey, W.M., Rest, A., Smartt, S., et al., 2010, In: American Astronomical Society Meeting Abstracts #216, vol. 216 of American Astronomical Society Meeting Abstracts, 415.12, ADS Link
- [2142] Wu, X., Roby, W., Goldina, T., Ly, L., IRSA IPAC, 2015, In: American Astronomical Society Meeting Abstracts #225, vol. 225 of American Astronomical Society Meeting Abstracts, 434.06, ADS Link
- [2143] Wu, X., Ciardi, D., Dubois-Felsmann, G., et al., 2017, In: Lorente, N.P.F., Shortridge, K., Wayth, R. (eds.) *Astronomical Data Analysis Software and Systems XXV*, vol. 512 of Astronomical Society of the Pacific Conference Series, 455, ADS Link

- [2144] Wu, X., Roby, W., Goldian, T., et al., 2019, In: Molinaro, M., Shortridge, K., Pasian, F. (eds.) *Astronomical Data Analysis Software and Systems XXVI*, vol. 521 of *Astronomical Society of the Pacific Conference Series*, 32, ADS Link
- [2145] Wyrzykowski, Ł., Hodgkin, S., Blogorodnova, N., Kuposov, S., Burgon, R., 2012, In: *2nd Gaia Follow-up Network for Solar System Objects*, 21 (arXiv:1210.5007), doi:10.48550/arXiv.1210.5007, ADS Link
- [2146] **[PSTN-008]**, Xin, B., 2020, *Active Optics System Performance of the Simonyi Survey Telescope*, Project Science Technical Note PSTN-008, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-008.lsst.io/>
- [2147] **[PSTN-032]**, Xin, B., 2020, *Performance of Delivered Vera C. Rubin Observatory*, Project Science Technical Note PSTN-032, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-032.lsst.io/>
- [2148] **[SITCOMTN-007]**, Xin, B., 2020, *The Rubin Observatory As-built Optical Model*, Commissioning Technical Note SITCOMTN-007, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-007.lsst.io/>
- [2149] **[SCTR-31]**, Xin, B., 2021, *LW-P66: M2 Functional Re-verification and SAL Interface Verification Test Plan and Report*, Commissioning Technical Report SCTR-31, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-31.lsst.io/>
- [2150] **[SITCOMTN-003]**, Xin, B., 2021, *Coordinate Transformations within the Rubin Active Optics System*, Commissioning Technical Note SITCOMTN-003, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-003.lsst.io/>
- [2151] **[SITCOMTN-009]**, Xin, B., 2021, *Command Structure of the AOS CSCs*, Commissioning Technical Note SITCOMTN-009, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-009.lsst.io/>
- [2152] Xin, B., Claver, C., Liang, M., et al., 2015, *Appl. Opt.*, 54, 9045 (arXiv:1506.04839), doi:10.1364/AO.54.009045, ADS Link
- [2153] **[Document-20160]**, Xin, B., Angeli, G., Željko Ivezić, 2016, *Atmospheric and Delivered Image Quality in OpSim*, Informal Construction Document Document-20160, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-20160>
- [2154] Xin, B., Roodman, A., Angeli, G., Claver, C., Thomas, S., 2016, In: Hall, H.J., Gilmozzi, R., Marshall, H.K. (eds.) *Ground-based and Airborne Telescopes VI*, vol. 9906

- of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 99064], doi:10.1117/12.2234456, ADS Link
- [2155] Xin, B., Claver, C.F., Ivezić, Ž., et al., 2018, In: Angeli, G.Z., Dierickx, P. (eds.) Modeling, Systems Engineering, and Project Management for Astronomy VIII, vol. 10705 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 107050P, doi:10.1117/12.2313880, ADS Link
- [2156] **[SITCOMTN-004]**, Xin, B., Neill, D., Thomas, S., Claver, C., 2020, *Standardizing the Implementation of the Rubin AOS LUTs*, Commissioning Technical Note SITCOMTN-004, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-004.lsst.io/>
- [2157] Yagi, M., 2012, PASP, 124, 1347 (arXiv:1210.8212), doi:10.1086/668891, ADS Link
- [2158] Yamada, Y., Hara, T., Yoshioka, S., et al., 2012, In: Ballester, P., Egret, D., Lorente, N.P.F. (eds.) Astronomical Data Analysis Software and Systems XXI, vol. 461 of Astronomical Society of the Pacific Conference Series, 585, ADS Link
- [2159] YAML, The Official YAML Web Site, URL <http://yaml.org/>
- [2160] **[DMTN-311]**, Yang, W., 2025, *Using Tape RSE at the USDF*, Data Management Technical Note DMTN-311, Vera C. Rubin Observatory, URL <https://dmtn-311.lsst.io/>
- [2161] **[RTN-032]**, Yang, W., 2025, *Panda/Rucio Multi-site Configuration*, Technical Note RTN-032, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-032.lsst.io/>
- [2162] **[RTN-023]**, Yanny, B., Slater, C., Padolski, S., et al., 2021, *Campaign Tooling – tools for generating, monitoring and tracking data processing campaigns*, Technical Note RTN-023, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-023.lsst.io/>
- [2163] **[RTN-039]**, Yanny, B., Kuropatkin, N., Lin, H., et al., 2023, *Compute Resource Usage of DP0.2 production run*, Technical Note RTN-039, NSF-DOE Vera C. Rubin Observatory, URL <https://rtn-039.lsst.io/>
- [2164] Yasuda, N., Mizumoto, Y., Ohishi, M., et al., 2004, In: Ochsenbein, F., Allen, M.G., Egret, D. (eds.) Astronomical Data Analysis Software and Systems (ADASS) XIII, vol. 314 of Astronomical Society of the Pacific Conference Series, 293, ADS Link
- [2165] **[SMTN-004]**, Yoachim, P., 2016, *SMTN-004 LSST Focal Plane Fill Factor From Rotational Dithering*, Simulations Team Technical Note SMTN-004, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-004.lsst.io/>

- [2166] **[SMTN-005]**, Yoachim, P., 2016, *Cloud Statistics via All-Sky Camera*, Simulations Team Technical Note SMTN-005, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-005.lsst.io/>
- [2167] **[SMTN-008]**, Yoachim, P., 2017, *Using GAIA BP/RP to Photometrically Calibrate LSST*, Simulations Team Technical Note SMTN-008, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-008.lsst.io/>
- [2168] **[SMTN-015]**, Yoachim, P., 2021, *Early Rubin Science: Time Needed to Generate Difference Imaging Templates*, Simulations Team Technical Note SMTN-015, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-015.lsst.io/>
- [2169] **[PSTN-052]**, Yoachim, P., 2022, *Survey Strategy: Rolling Cadence*, Project Science Technical Note PSTN-052, NSF-DOE Vera C. Rubin Observatory, URL <https://pstn-052.lsst.io/>, doi:10.71929/rubin/2584109
- [2170] **[SMTN-017]**, Yoachim, P., 2022, *Survey Strategy Simulation v2.x Results*, Simulations Team Technical Note SMTN-017, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-017.lsst.io/>
- [2171] **[SMTN-018]**, Yoachim, P., 2023, *Satellite Mega Constellations*, Simulations Team Technical Note SMTN-018, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-018.lsst.io/>
- [2172] **[SMTN-016]**, Yoachim, P., 2025, *Surface Brightness Limit Derivations*, Simulations Team Technical Note SMTN-016, NSF-DOE Vera C. Rubin Observatory, URL <https://smtn-016.lsst.io/>
- [2173] **[Document-15125]**, Yoachim, P., Jones, L., Ivezić, Ž., Axelrod, T., 2013, *Photometric Self Calibration Design and Prototype*, Informal Construction Document Document-15125, NSF-DOE Vera C. Rubin Observatory, URL <https://ls.st/Document-15125>
- [2174] Yoachim, P., Coughlin, M., Angeli, G.Z., et al., 2016, In: Peck, A.B., Seaman, R.L., Benn, C.R. (eds.) *Observatory Operations: Strategies, Processes, and Systems VI*, vol. 9910 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 99101A, doi:10.1117/12.2232947, ADS Link
- [2175] Yoachim, P., Jones, L., Eric H. Neilsen, J., Becker, M.R., 2024, *lsst/rubin_scheduler: v3.0.0*, URL <https://doi.org/10.5281/zenodo.13985198>, doi:10.5281/zenodo.13985198
- [2176] Zackay, B., Ofek, E.O., 2017, *ApJ*, 836, 188 (arXiv:1512.06879), doi:10.3847/1538-4357/836/2/188, ADS Link

- [2177] Zackay, B., Ofek, E.O., Gal-Yam, A., 2016, *ApJ*, 830, 27 (arXiv:1601.02655), doi:10.3847/0004-637X/830/1/27, ADS Link
- [2178] Zechmeister, M., Kürster, M., 2009, *A&A*, 496, 577 (arXiv:0901.2573), doi:10.1051/0004-6361:200811296, ADS Link
- [2179] Zellner, B., Tholen, D.J., Tedesco, E.F., 1985, *Icarus*, 61, 355, doi:10.1016/0019-1035(85)90133-2, ADS Link
- [2180] Zhang, T., Almoubayyed, H., Mandelbaum, R., et al., 2023, *MNRAS*, 520, 2328 (arXiv:2205.07892), doi:10.1093/mnras/stac3350, ADS Link
- [2181] **[SITCOMTN-165]**, Zhou, C., Jeltema, T., von der Linden, A., et al., 2025, *Surface brightness profiles around massive galaxies in LSSTComCam data*, Commissioning Technical Note SITCOMTN-165, NSF-DOE Vera C. Rubin Observatory, URL <https://sitcomtn-165.lsst.io/>, doi:10.71929/rubin/3000576
- [2182] Zicari, R.V., 2011, *Objects in Space*, URL <http://www.odbms.org/blog/2011/02/objects-in-space/>
- [2183] Ziemke, J.R., Olsen, M.A., Witte, J.C., et al., 2014, *Journal of Geophysical Research (Atmospheres)*, 119, 5671, doi:10.1002/2013JD020914, ADS Link
- [2184] **[SCTR-61]**, Zorzi, P., 2022, *LW-P93: M1M3 Thermal Control System Verification Testing on Level 3. Test Plan and Report*, Commissioning Technical Report SCTR-61, NSF-DOE Vera C. Rubin Observatory, URL <https://sctr-61.lsst.io/>
- [2185] Zucker, S., Mazeh, T., 1994, *ApJ*, 420, 806, doi:10.1086/173605, ADS Link
- [2186] Zucker, S., Mazeh, T., Santos, N.C., Udry, S., Mayor, M., 2004, *A&A*, 426, 695, doi:10.1051/0004-6361:20040384, ADS Link
- [2187] Zuntz, J., Sheldon, E., Samuroff, S., et al., 2018, *MNRAS*, 481, 1149 (arXiv:1708.01533), doi:10.1093/mnras/sty2219, ADS Link