



Vera C. Rubin Observatory
Data Management

Bibliography Verification

Automated Content

LSST-test

Latest Revision: 2022-06-15



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., 670, 294, are interesting]
\cite: [670, 294]
```

References

- [1] **[PSTN-043]** 2019, *Performance Verification of the LSST Survey Scheduler*, PSTN-043, URL <https://pstn-043.lsst.io/>, Vera C. Rubin Observatory Project Science Technical Note
- [2] **[PSTN-046]** 2020, *Vera C. Rubin Observatory LSST Camera Design and Delivered Performance*, PSTN-046, URL <https://pstn-046.lsst.io/>, Vera C. Rubin Observatory Project Science Technical Note
- [3] Abazajian, K., Adelman-McCarthy, J.K., Ageros, M.A., et al., 2009, *The Astrophysical Journal Supplement Series*, 182, doi:10.1088/0067-0049/182/2/543, ADS Link
- [4] Abell, P.A., Allison, J., Anderson, S.F., et al., 2009 (arXiv:0912.0201)
- [5] 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

- [6] Adams, A., Avila, K., Heymann, E., et al., 2021, Guide to securing scientific software, URL <https://zenodo.org/record/5777646#.YfSEvmB1C3o>
- [7] Aihara, H., Armstrong, R., Bickerton, S., et al., 2017, ArXiv e-prints (arXiv:1702.08449), ADS Link
- [8] **[DMTN-151]**, et al., M.L.G., 2021, *Host Galaxy Association for DIAObjects*, DMTN-151, URL <https://dmtn-151.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [9] Alard, C., Lupton, R.H., 1998, ApJ, 503, 325 (arXiv:astro-ph/9712287), doi:10.1086/305984, ADS Link
- [10] Albrecht, A., Bernstein, G., Cahn, R., et al., 2006, ArXiv Astrophysics e-prints (arXiv:astro-ph/0609591), ADS Link
- [11] Alcock, C., Allsman, R.A., Alves, D., et al., 1999, ApJ, 521, 602 (arXiv:astro-ph/9903215), doi:10.1086/307567, ADS Link
- [12] Alejandro Plazas, A., Bernstein, G., 2012, PASP, 124, 1113 (arXiv:1204.1346), doi:10.1086/668294, ADS Link
- [13] Allan, A., Denny, R.B., Swinbank, J.D., 2017, arXiv e-prints (arXiv:1709.01264), ADS Link
- [14] **[DMTN-169]**, Allbery, R., 2020, *A model for Butler registry access control*, DMTN-169, URL <https://dmtn-169.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [15] **[SQR-037]**, Allbery, R., 2020, *SQuaRE security risk assessment*, SQR-037, URL <https://sqr-037.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [16] **[SQR-039]**, Allbery, R., 2020, *Discussion of authentication and authorization for Science Platform*, SQR-039, URL <https://sqr-039.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [17] **[SQR-042]**, Allbery, R., 2020, *Dependency management for SQuaRE services*, SQR-042, URL <https://sqr-042.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [18] **[SQR-044]**, Allbery, R., 2020, *Science Platform identity management requirements*, SQR-044, URL <https://sqr-044.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note

- [19] **[SQR-045]**, Allbery, R., 2020, *Evaluation of CILogon CManage for Rubin Science Platform*, SQR-045, URL <https://sqr-045.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [20] **[SQR-046]**, Allbery, R., 2020, *Evaluation of GitHub for Rubin Science Platform identity management*, SQR-046, URL <https://sqr-046.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [21] **[SQR-048]**, Allbery, R., 2020, *Kubernetes hardening recommendations*, SQR-048, URL <https://sqr-048.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [22] **[DMTN-182]**, Allbery, R., 2021, *Possible authorization approaches for Butler*, DMTN-182, URL <https://dmtn-182.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [23] **[DMTN-193]**, Allbery, R., 2021, *Web security for the Science Platform*, DMTN-193, URL <https://dmtn-193.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [24] **[RTN-020]**, Allbery, R., 2021, *Security controls for administrative and developer access to IDF infrastructure*, RTN-020, URL <https://rtn-020.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [25] **[SQR-041]**, Allbery, R., 2021, *Science Platform security risk assessment*, SQR-041, URL <https://sqr-041.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [26] **[SQR-049]**, Allbery, R., 2021, *Science Platform token management design*, SQR-049, URL <https://sqr-049.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [27] **[SQR-051]**, Allbery, R., 2021, *Leaks of credentials to services in the Rubin Science Platform*, SQR-051, URL <https://sqr-051.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [28] **[SQR-055]**, Allbery, R., 2021, *CManage configuration for Rubin Science Platform*, SQR-055, URL <https://sqr-055.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note

- [29] **[SQR-063]**, Allbery, R., 2021, *IVOA SODA implementation experience*, SQR-063, URL <https://sqr-063.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [30] **[DMTN-224]**, Allbery, R., 2022, *RSP identity management implementation strategy*, DMTN-224, URL <https://dmtn-224.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [31] **[DMTN-225]**, Allbery, R., 2022, *User metadata for the Science Platform*, DMTN-225, URL <https://dmtn-225.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [32] **[DMTN-230]**, Allbery, R., 2022, *RSP HiPS service implementation strategy*, DMTN-230, URL <https://dmtn-230.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [33] **[DMTN-163]**, Allbery, R., Lim, K.T., Economou, F., O'Mullane, W., 2021, *Encryption of Rubin Observatory data*, DMTN-163, URL <https://dmtn-163.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [34] Allende Prieto, C., 2007, AJ, 134, 1843 (arXiv:0707.2764), doi:10.1086/522051, ADS Link
- [35] **[LSE-16]**, Allsman, R., Dubois-Felsmann, G., Kantor, J., 2009, *LSST Software Development Plan*, LSE-16, URL <https://ls.st/LSE-16>
- [36] **[DMTN-080]**, AlSayyad, Y., 2019, *Coaddition Artifact Rejection and CompareWarp*, DMTN-080, URL <https://dmtn-080.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [37] **[DMTR-302]**, AlSayyad, Y., 2021, *LDM-503-13a: Science Pipelines Fall 2020 Release Test Plan and Report*, DMTR-302, URL <https://dmtr-302.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [38] **[DMTR-321]**, AlSayyad, Y., 2022, *LDM-503-15a: Science Pipelines Fall 2021 Release Test Plan and Report*, DMTR-321, URL <https://dmtr-321.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [39] 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

- [40] AlSayyad, Y., McGreer, I., Connolly, A., et al., 2015, Case study: Classifying high redshift 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
- [41] Amaro-Seoane, P., Aoudia, S., Babak, S., et al., 2013, GW Notes, Vol. 6, p. 4-110, 6, 4 (arXiv:1201.3621), ADS Link
- [42] Amazon, Amazon Glacier – Cloud Archive, URL <https://aws.amazon.com/glacier/>
- [43] 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
- [44] **[LSE-159]**, Angeli, G., 2013, *Reviews Definitions, Guidelines, and Procedures*, LSE-159, URL <https://ls.st/LSE-159>
- [45] **[Document-11920]**, Angeli, G., McKercher, R., 2013, *Document Cover Page and Style Guide*, Document-11920, URL <https://ls.st/Document-11920>
- [46] **[Document-9224]**, Angeli, G., McKercher, R., 2013, *Change Controlled Document Cover Page and Style Guide*, Document-9224, URL <https://ls.st/Document-9224>
- [47] **[LPM-19]**, Angeli, G., McKercher, R., 2015, *Change Control Process*, LPM-19, URL <https://ls.st/LPM-19>
- [48] Angeli, G.Z., Xin, B., Claver, C., et al., 2014, *Real time wavefront control system for the Large Synoptic Survey Telescope (LSST)*, vol. 9150 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 91500H, doi:10.1117/12.2055390
- [49] Angeli, G.Z., Xin, B., Claver, C., et al., 2016, *An integrated modeling framework for the Large Synoptic Survey Telescope (LSST)*, vol. 9911 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 991118, doi:10.1117/12.2234078
- [50] Ansari, S., Torra, J., López, P.P., et al., Algorithm Interface Control Document, CCB-GDAAS-ICD-001
- [51] Ansari, S.G., Torra, J., Luri, X., et al., 2003, In: Science and Technology, ASP Conference Series, vol. 298, page 97
- [52] 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

- [53] 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
- [54] **[DMTR-82]**, Arcanjo, V., Astudillo, A., Bezerra, J., et al., 2018, *Network Bandwidth Tests between Chile and the United States*, DMTR-82, URL <https://ls.st/DMTR-82>
- [55] Arenou, F., Chéreau, F.,
private communication
- [56] Arenou, F., Lindegren, L., Froeschle, M., et al., 1995, *A&A*, 304, 52, ADS Link
- [57] Astropy Collaboration, Price-Whelan, A.M., Sipőcz, B.M., et al., 2018, *AJ*, 156, 123 (arXiv:1801.02634), doi:10.3847/1538-3881/aabc4f, ADS Link
- [58] Auer, L.H., Standish, E.M., 2000, *AJ*, 119, 2472, doi:10.1086/301325, ADS Link
- [59] 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
- [60] 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
- [61] Axelrod, T., Kantor, J., 2010, In: *Supercomputing 2010*, LSST Corporation, Supercomputing Conference, URL <https://docushare.lsstcorp.org/docushare/dsweb/Get/Document-10284/>
- [62] Axelrod, T., Connolly, A., Ivezić, Z., et al., 2004, In: *American Astronomical Society Meeting Abstracts*, vol. 36 of *Bulletin of the American Astronomical Society*, #108.11, ADS Link
- [63] Axelrod, T., Becker, A., Connolly, A., et al., 2005, In: *American Astronomical Society Meeting Abstracts*, vol. 37 of *Bulletin of the American Astronomical Society*, 1207, ADS Link
- [64] Axelrod, T., 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
- [65] **[Document-5356]**, Axelrod, T., Allsman, R., Kantor, J., et al., 2008, *LSST Data Challenge 2*, Document-5356, URL <https://ls.st/Document-5356>

- [66] 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 *Proc. SPIE*, 15, doi:10.1117/12.857297, ADS Link
- [67] **[LDM-17]**, Axelrod, T., et al., 2009, *LSST Data Challenge 3a Final Report*, LDM-17, URL <https://ls.st/LDM-17>
- [68] 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
- [69] Axelrod, T.S., Allsman, R., Becker, A., et al., 2006, In: *American Astronomical Society Meeting Abstracts*, vol. 38 of *Bulletin of the American Astronomical Society*, 1018, ADS Link
- [70] Axelrod, T.S., Becker, A., Becla, J., et al., 2009, In: *American Astronomical Society Meeting Abstracts #213*, vol. 41 of *Bulletin of the American Astronomical Society*, #460.30, ADS Link
- [71] Baccaro, S., Cecilia, A., Di Sarcina, I., Piegari, A.M., 2004, In: E. Atad-Ettinger and P. Dierickx (ed.) *Optical Fabrication, Metrology, and Material Advancements for Telescopes*, vol. 5494 of *Proc. SPIE*, 529–535, doi:10.1117/12.553602, ADS Link
- [72] Baccaro, S., Piegari, A., Di Sarcina, I., Cecilia, A., 2005, *IEEE transactions on nuclear science*, 52, 1779
- [73] Bailer-Jones, C.A.L., 2002, *Astrophysics and Space Science*, 280, 21 (arXiv:astro-ph/0201014), ADS Link
- [74] 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
- [75] Bailer-Jones, C.A.L., 2004, *A&A*, 419, 385 (arXiv:astro-ph/0402591), doi:10.1051/0004-6361:20035779, ADS Link
- [76] Bailer-Jones, C.A.L., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *ESA SP-576: The Three-Dimensional Universe with Gaia*, 393–+, ADS Link
- [77] Bailer-Jones, C.A.L., 2010, *MNRAS*, 403, 96 (arXiv:0911.5242), doi:10.1111/j.1365-2966.2009.16125.x, ADS Link

- [78] 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
- [79] **[DMTN-090]**, Banek, C., 2019, *DAX Webservice Implementation Guide*, DMTN-090, URL <https://dmtn-090.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [80] **[DMTN-164]**, Banek, C., 2020, *Nublado v2 Architecture*, DMTN-164, URL <https://dmtn-164.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [81] **[PSTN-005]**, Barr, J.D., 2019, *Overview of the LSST Telescope*, PSTN-005, URL <https://pstn-005.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [82] Bastian, U., Biermann, M., 2005, *A&A*, 438, 745, doi:10.1051/0004-6361:20042372, ADS Link
- [83] 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
- [84] **[PSTN-031]**, Bauer, A.E., 2019, *LSST EPO: The User Feedback*, PSTN-031, URL <https://pstn-031.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [85] **[PSTN-029]**, Bauer, A.E., 2020, *The Vera C. Rubin Observatory Education and Public Outreach Program*, PSTN-029, URL <https://pstn-029.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [86] Bauer, A.E., Bellm, E.C., Bolton, A.S., et al., 2019, arXiv e-prints, arXiv:1905.05116 (arXiv:1905.05116), ADS Link
- [87] 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
- [88] **[LSE-389]**, Bechtol, K., 2018, *Commissioning Science Validation Test Plan*, LSE-389, URL <https://lse-389.lsst.io/>,
Vera C. Rubin Observatory

- [89] **[PSTN-039]**, Bechtol, K., 2020, *Science Validation of LSST Data Release Processing*, PSTN-039, URL <https://pstn-039.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [90] **[DMTN-141]**, Bechtol, K., Carlin, J., Krughoff, S., 2020, *Design concepts for the SV-distiller*, DMTN-141, URL <https://dmtn-141.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [91] **[SITCOMTN-010]**, Bechtol, K., Claver, C., Test, S.I., et al., 2021, *Announcement of Opportunity: Community Engagement with Rubin Observatory Commissioning Effort*, SITCOMTN-010, URL <https://sitcomtn-010.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [92] **[SITCOMTN-025]**, Bechtol, K., (chair), P.I., Jenness, T., et al., 2022, *First-Look Analysis and Feedback Functionality Breakout Group Report*, SITCOMTN-025, URL <https://sitcomtn-025.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [93] Beck, K., 1999, *Extreme Programming Explained: Embrace Change*, Addison-Wesley, 1st edn.
- [94] 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
- [95] 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
- [96] 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
- [97] Becker, A., Axelrod, T., Ivezić, Z., et al., 2005, In: American Astronomical Society Meeting Abstracts, vol. 37 of Bulletin of the American Astronomical Society, 1206, ADS Link
- [98] Becker, A., Silvestri, N., Owen, R., Ivezić, Ž., Lupton, R., 2007, PASP, 119, 1462 (arXiv:0712.0637), doi:10.1086/524710, ADS Link
- [99] **[LDM-227]**, Becker, A., Krughoff, S., Connolly, A., et al., 2013, *Report on Late Winter 2013 Production: Image Differencing*, LDM-227, URL <https://lsst.lsst/LDM-227>

- [100] **[DMTN-069]**, Becker, A., Krughoff, S., Connolly, A., 2014, *Report on Winter 2014 Production: Image Differencing*, DMTN-069, URL <https://dmtn-069.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [101] **[DMTN-070]**, Becker, A., Krughoff, S., Connolly, A., 2014, *Report on Summer 2014 Production: Analysis of DCR*, DMTN-070, URL <https://dmtn-070.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [102] **[Document-11013]**, Becker, A., et al., 2011, *Science White Paper for LSST Deep-Drilling Field Observations Opportunities for Solar System Science*, Document-11013, URL <https://ls.st/Document-11013>
- [103] Becker, A.C., Rest, A., Miknaitis, G., Smith, R.C., Stubbs, C., 2004, In: American Astronomical Society Meeting Abstracts, vol. 36 of Bulletin of the American Astronomical Society, #108.12, ADS Link
- [104] Becker, A.C., Silvestri, N., Owen, R., et al., 2009, In: American Astronomical Society Meeting Abstracts #213, vol. 41 of Bulletin of the American Astronomical Society, #460.28, ADS Link
- [105] Becker, A.C., Bloom, J.S., Walkowicz, L.M., Collaboration, L., 2011, In: American Astronomical Society Meeting Abstracts #217, vol. 43 of Bulletin of the American Astronomical Society, #252.12, ADS Link
- [106] **[Document-1386]**, Becla, J., 2006, *Database Ingest Tests*, Document-1386, URL <https://ls.st/Document-1386>
- [107] 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
- [108] **[Document-8256]**, Becla, J., 2009, *Evaluation of Database Solutions*, Document-8256, URL <https://ls.st/Document-8256>
- [109] Becla, J., 2010, In: Astronomical Data Analysis Software and Systems XX, ADASS XX, SLAC National Accelerator Laboratory
- [110] **[DMTR-12]**, Becla, J., 2013, *Qserv 300 node test*, DMTR-12, URL <https://ls.st/DMTR-12>
- [111] **[LDM-153]**, Becla, J., 2013, *LSST Database Baseline Schema*, LDM-153, URL <https://ls.st/LDM-153>

- [112] 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
- [113] 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
- [114] **[DMTR-13]**, Becla, J., 2015, *Qserv Summer 15 Large Scale Tests*, DMTR-13, URL <https://ls.st/DMTR-13>
- [115] **[DMTN-083]**, Becla, J., 2016, *LSST DM Metadata and Provenance*, DMTN-083, URL <https://dmtn-083.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [116] **[LDM-555]**, Becla, J., 2017, *Data Management Database Requirements*, LDM-555, URL <https://ls.st/LDM-555>
- [117] Becla, J., Lim, K.T., 2008, *Data Science Journal*, 7, doi:10.2481/dsj.7.1
- [118] Becla, J., Lim, K.T., 2008, *Data Science Journal*, 7, doi:10.2481/dsj.7.88
- [119] **[LDM-139]**, Becla, J., Lim, K.T., 2013, *Data Management Storage Sizing and I/O Model Explanation*, LDM-139, URL <https://ls.st/LDM-139>
- [120] **[LDM-141]**, Becla, J., Lim, K.T., 2013, *Data Management Storage Sizing and I/O Model*, LDM-141, URL <https://ls.st/LDM-141>
- [121] **[LDM-463]**, Becla, J., Pease, N., 2017, *Data Access Design*, LDM-463, URL <https://ls.st/LDM-463>
- [122] 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>
- [123] Becla, J., Wang, D.L., 2014, In: *Exascale Radio Astronomy*, vol. 2, ADS Link
- [124] Becla, J., Nikolaev, S., Abdulla, G., et al., 2005, In: *American Astronomical Society Meeting Abstracts*, vol. 37 of *Bulletin of the American Astronomical Society*, 1207, ADS Link
- [125] 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 *Proc. SPIE*, 0 (arXiv:cs/0604112), doi:10.1117/12.671721, ADS Link

- [126] 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
- [127] Becla, J., Lim, K.T., Wang, D.L., 2010, *Data Science Journal*, 8, MR1, doi:10.2481/dsj.xldb09
- [128] **[Document-11625]**, Becla, J., Lim, K.T., Wang, D., 2011, *Database Architecture*, Document-11625, URL <https://ls.st/Document-11625>
- [129] **[Document-11701]**, Becla, J., Lim, K.T., Wang, D., 2011, *Evaluation of Solid State Disks*, Document-11701, URL <https://ls.st/Document-11701>
- [130] Becla, J., Lim, K.T., Wang, D.L., 2012, Facts about xldb-2011, URL <http://www.osti.gov/scitech/biblio/1035489/>
- [131] **[DMTN-046]**, Becla, J., Lim, K.T., Wang, D., 2013, *An investigation of database technologies*, DMTN-046, URL <https://dmtn-046.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [132] **[DMTN-048]**, Becla, J., Lim, K.T., Wang, D., 2013, *Qserv design prototyping experiments*, DMTN-048, URL <https://dmtn-048.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [133] **[DMTR-21]**, Becla, J., Lim, K.T., Wang, D., 2013, *Early (pre-2013) Large-Scale Qserv Tests*, DMTR-21, URL <https://ls.st/DMTR-21>
- [134] **[Document-26276]**, Becla, J., Lim, K.T., Wang, D., 2013, *Scalable Partitioning*, Document-26276, URL <https://ls.st/Document-26276>
- [135] **[LDM-472]**, Becla, J., Economou, F., Mueller, F., et al., 2017, *LSST DM Project Management and Tools*, LDM-472, URL <https://ldm-472.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [136] **[LDM-135]**, Becla, J., Wang, D., Monkewitz, S., et al., 2017, *Data Management Database Design*, LDM-135, URL <https://ldm-135.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [137] **[DMTN-020]**, Becla, J., Economou, F., Gelman, M., et al., 2018, *Data Management Project Management Guide*, DMTN-020, URL <https://dmtn-020.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [138] 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
- [139] Beletic, J.W., Blank, R., Gulbransen, D., et al., 2008, In: Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, vol. 7021 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 70210H, doi:10.1117/12.790382, ADS Link
- [140] **[DMTN-085]**, Bellm, E.C., Chiang, et al., 2019, *QA Strategy Working Group Report*, DMTN-085, URL <https://dmtn-085.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [141] **[DMTR-91]**, Bellm, E., 2019, *LDM-503-5: (Alert Distribution Validation) Test Plan and Report*, DMTR-91, URL <https://dmtr-91.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [142] **[PSTN-021]**, Bellm, E., 2019, *LSST Prompt Data Products*, PSTN-021, URL <https://pstn-021.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [143] **[RTN-010]**, Bellm, E., 2020, *Pre-operations Alert Distribution Integration Exercise: Definition and planning*, RTN-010, URL <https://rtn-010.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [144] **[DMTN-200]**, Bellm, E., 2021, *Fluxes of variables in difference imaging*, DMTN-200, URL <https://dmtn-200.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [145] **[DMTN-221]**, Bellm, E., 2022, *Periodicity Analysis in Alert Production*, DMTN-221, URL <https://dmtn-221.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [146] **[DMTN-165]**, Bellm, E., Nelson, S., 2021, *A Hybrid Notification and Alert Retrieval Service*, DMTN-165, URL <https://dmtn-165.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [147] **[LDM-682]**, Bellm, E., Blum, R., Graham, M., et al., 2019, *Call for Letters of Intent for Community Alert Brokers*, LDM-682, URL <https://ls.st/LDM-682>

- [148] **[LDM-612]**, Bellm, E., Blum, R., Graham, M., et al., 2020, *Plans and Policies for LSST Alert Distribution*, LDM-612, URL <https://ldm-612.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [149] **[LDM-723]**, Bellm, E., Blum, R., Graham, M., et al., 2020, *Call for Proposals for Community Alert Brokers*, LDM-723, URL <https://ldm-723.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [150] **[RDO-061]**, Bellm, E., Blum, R., Guy, L., 2021, *Community Alert Broker MoU*, RDO-061, URL <https://rdo-061.lsst.io/>,
Vera C. Rubin Observatory
- [151] **[DMTN-228]**, Bellm, E., Graham, M., Guy, L., the DM System Science Team, 2022, *Measurement of Faint DIASources in LSST Prompt Processing*, DMTN-228, URL <https://dmtn-228.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [152] **[LDM-533]**, Bellm, E.C., 2017, *Level 1 System Software Test Specification*, LDM-533, URL <https://ls.st/LDM-533>
- [153] **[RTN-008]**, Bellm, E.C., 2020, *LSST Processing of Gravitational Wave TOO Data in the Early Operations Era*, RTN-008, URL <https://rtn-008.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [154] **[DMTN-118]**, Bellm, E.C., 2021, *Review of Timeseries Features*, DMTN-118, URL <https://dmtn-118.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [155] **[DMTN-226]**, Bellm, E.C., Guy, L., 2022, *Rubin/LSST Alert Filtering System*, DMTN-226, URL <https://dmtn-226.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [156] **[DMTR-53]**, Bellm, E.C., Swinbank, J.D., 2018, *LDM-503-3 (Alert Generation) Test Report*, DMTR-53, URL <https://dmtr-53.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [157] Benítez, N., 2000, ApJ, 536, 571 (arXiv:astro-ph/9811189), doi:10.1086/308947, ADS Link
- [158] Bernstein, G.M., Armstrong, R., 2014, MNRAS, 438, 1880 (arXiv:1304.1843), doi:10.1093/mnras/stt2326, ADS Link
-

- [159] Bernstein, G.M., Jarvis, M., 2002, *AJ*, 123, 583 (arXiv:astro-ph/0107431), doi:10.1086/338085, ADS Link
- [160] Bernstein, G.M., Armstrong, R., Krawiec, C., March, M.C., 2016, *MNRAS*, 459, 4467 (arXiv:1508.05655), doi:10.1093/mnras/stw879, ADS Link
- [161] 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
- [162] 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
- [163] 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
- [164] Beyer, B., Jones, C., Petoff, J., Murphy, N.R., 2016, *Site Reliability Engineering: How Google Runs Production Systems*, O'Reilly Media, Inc., 1st edn.
- [165] **[Document-35896]**, Bianco, F., coordinator, S., SC, T., 2020, *MEMO on the impact of delays in pixel-level data access*, Document-35896, URL <https://ls.st/Document-35896>
- [166] **[PSTN-054]**, Bianco, F.B., Jones, L., Ivezić, Ž., 2022, *Updated estimates of the Rubin system throughput and expected LSST image depth*, PSTN-054, URL <https://pstn-054.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [167] Bickerton, S.J., Lupton, R.H., 2013, *MNRAS*, 431, 1275 (arXiv:1302.4764), doi:10.1093/mnras/stt244, ADS Link
- [168] 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
- [169] Bloch, J., 2001, *Writing Effective Java*, Addison-Wesley, 1st edn.
- [170] Bloom, J.S., Richards, J.W., Nugent, P.E., et al., 2012, *PASP*, 124, 1175 (arXiv:1106.5491), doi:10.1086/668468, ADS Link
- [171] **[RDO-018]**, Blum, R., 2021, *PLAN for the OPERATIONS of the VERA C. RUBIN OBSERVATORY*, RDO-018, URL <https://docushare.lsstcorp.org/docushare/dsweb/Get/RDO-18>
- [172] **[RDO-013]**, Blum, R., the Rubin Operations Team, 2020, *Vera C. Rubin Observatory Data Policy*, RDO-013, URL <https://ls.st/RDO-013>

- [173] **[LDO-13]**, Blum, R., et al., 2019, *LSST Data Policy*, LDO-13, URL <https://ls.st/LDO-13>
- [174] **[LDO-31-OBS-RDO-018]**, Blum, R., et al., 2020, *OBSOLETE NOW RDO-018 - LSST Operations Proposal*, LDO-31-OBS-RDO-018, URL <https://ls.st/LDO-31-OBS-RDO-018>
- [175] **[IVOAMOC]**, Boch, T., Donaldson, T., Durand, D., et al., 2014, *MOC - HEALPix Multi-Order Coverage map Version 1.0*, URL <http://www.ivoa.net/documents/MOC/>
- [176] 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
- [177] 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
- [178] Bombrun, A., Lindegren, L., Holl, B., Jordan, S., 2010, *A&A*, 516, A77, doi:10.1051/0004-6361/200913503, ADS Link
- [179] Bombrun, A., Lindegren, L., Hobbs, D., et al., 2012, *Astronomy and Astrophysics*, 538, A77, doi:10.1051/0004-6361/201117904
- [180] **[PSTN-016]**, Bond, T.W., 2019, *LSST Camera Integration and Tests*, PSTN-016, URL <https://pstn-016.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [181] Bonnarel, F., Fernique, P., Bienaymé, O., et al., 2000, *A&AS*, 143, 33, doi:10.1051/aas:2000331, ADS Link
- [182] Booch, G., Rumbaugh, J., Jacobson, I., 2005, *The Unified Modeling Language User Guide*, Addison-Wesley Professional, 2nd edn.
- [183] de Boor, C., 2001, *A Practical Guide to Splines*, Springer, revised edn.
- [184] Borncamp, D., Lim, P.L., 2016, *Satellite Detection in Advanced Camera for Surveys/Wide Field Channel Images*, Tech. rep., STScI, ADS Link
- [185] Borne, K., Becla, J., Davidson, I., Szalay, A., Tyson, J.A., 2008, In: Bailer-Jones, C.A.L. (ed.) *American Institute of Physics Conference Series*, vol. 1082 of American Institute of Physics Conference Series, 347–351 (arXiv:0811.0167), doi:10.1063/1.3059074, ADS Link

- [186] Borne, K., Accomazzi, A., Bloom, J., et al., 2009, In: astro2010: The Astronomy and Astrophysics Decadal Survey, vol. 2010 of ArXiv Astrophysics e-prints, 6P (arXiv:0909.3892), ADS Link
- [187] Borne, K.D., Jacoby, S., Carney, K., et al., 2009, In: astro2010: The Astronomy and Astrophysics Decadal Survey, vol. 2010 of ArXiv Astrophysics e-prints, 7P (arXiv:0909.3895), ADS Link
- [188] 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
- [189] 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
- [190] **[DMTN-038]**, Bosch, J., 2015, *Measurement of Blended Objects in LSST*, DMTN-038, URL <https://dmtn-038.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [191] 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
- [192] **[DMTN-015]**, Bosch, J., 2016, *Flavors of Coadds*, DMTN-015, URL <https://dmtn-015.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [193] **[DMTN-023]**, Bosch, J., 2017, *Pipeline Command-Line Drivers*, DMTN-023, URL <https://dmtn-023.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [194] **[LDM-513]**, Bosch, J., 2017, *Proposal for Deblender Outputs as Level 2 Data Products*, LDM-513, URL <https://ls.st/LDM-513>
- [195] **[LDM-562]**, Bosch, J., 2017, *Data Management System Level 2 System Requirements*, LDM-562, URL <https://ls.st/LDM-562>
- [196] **[DMTN-073]**, Bosch, J., 2018, *The Gen3 Butler Registry Schema*, DMTN-073, URL <https://dmtn-073.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
-

- [197] **[DMTN-172]**, Bosch, J., 2020, *Multi-Stage Image Characterization and Calibration for DRP*, DMTN-172, URL <https://dmtn-172.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [198] **[DMTN-167]**, Bosch, J., 2021, *Policies and Conventions for Organizing Gen3 Data Repositories*, DMTN-167, URL <https://dmtn-167.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [199] **[DMTN-175]**, Bosch, J., 2021, *Design sketch for a pipetask overhaul*, DMTN-175, URL <https://dmtn-175.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [200] **[DMTN-196]**, Bosch, J., 2021, *Practical, nearly-proper image subtraction, yet again*, DMTN-196, URL <https://dmtn-196.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [201] **[DMTN-220]**, Bosch, J., 2022, *Middleware Support for Campaign Definition and Management*, DMTN-220, URL <https://dmtn-220.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [202] **[Document-15298]**, Bosch, J., Gee, P., Owen, R., Jurić, M., 2013, *LSST DM S13 Report: Shapre Measurement Plans and Prototypes*, Document-15298, URL <https://lsst/Document-15298>
- [203] Bosch, J., Armstrong, R., Bickerton, S., et al., 2018, PASJ, 70, S5 (arXiv:1705.06766), doi:10.1093/pasj/psx080, ADS Link
- [204] **[DMTR-51]**, Bosch, J., Chiang, H.F., Gower, M., et al., 2018, *LDM-503-2 (HSC Reprocessing) Test Report*, DMTR-51, URL <https://dmtr-51.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [205] 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, ADS Link
- [206] **[DMTN-129]**, Bosch, J., Lupton, R., Slater, C., 2019, *Crowded Field Photometry in LSST Data Release Production*, DMTN-129, URL <https://dmtn-129.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [207] **[LDM-534]**, Bosch, J., Chiang, H.F., Gower, M., Swinbank, J.D., 2021, *LSST Level 2 System Test Specification*, LDM-534, URL <https://ldm-534.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document

- [208] **[PSTN-020]**, Bosch, J.F., 2019, *LSST Data Release Processing*, PSTN-020, URL <https://pstn-020.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [209] Bradley, J., 1727, Royal Society of London Philosophical Transactions Series I, 35, 637,
ADS Link
- [210] Bretagnon, P., 1982, A&A, 114, 278, ADS Link
- [211] Bretagnon, P., Francou, G., 1988, A&A, 202, 309, ADS Link
- [212] 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
- [213] Britton, M.C., 2004, In: Craig, S.C., Cullum, M.J. (eds.) *Modeling and Systems Engineering for Astronomy*, vol. 5497 of Proc. SPIE, 290–300, doi:10.1117/12.552316, ADS Link
- [214] Brooks, F.P., 1982, *The Mythical Man-Month: Essays on Software Engineering*, ADS Link
- [215] Brown, A.G.A., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *ESA SP-576: The Three-Dimensional Universe with Gaia*, 377–+, ADS Link
- [216] 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
- [217] 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
- [218] de Bruijne, J., 2004,
private communication
- [219] de Bruijne, J., Jordi, C., 2004, URL <http://gaia.am.ub.es/PWG/common/instrumGAIA2.html>,
private communication
- [220] Brumfit, J., 2002, *Java Coding Standard and Guidelines for the Herschel Common Science System*, Tech. rep., ESTEC,
HSCDT/TN009
- [221] Bucciarelli, B., Taff, L.G., Lattanzi, M.G., 1993, J. Statist. Comput. Simul., 48, 29

- [222] Bucciarelli, B., Lattanzi, M.G., Taff, L.G., 1994, *ApJ*, 433, 831, doi:10.1086/174692, ADS Link
- [223] Budavári, T., Szalay, A.S., 2008, *ApJ*, 679, 301 (arXiv:0707.1611), doi:10.1086/587156, ADS Link
- [224] 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
- [225] 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>
- [226] Burt, D., 2003, *Gaia Technology Demonstrator: AF CCD DESIGN REPORT*, Tech. rep., e2v, GAIA-E2V-RP-020
- [227] Bus, S.J., Binzel, R.P., 2002, *Icarus*, 158, 106, doi:10.1006/icar.2002.6857, ADS Link
- [228] Bus, S.J., Binzel, R.P., 2002, *Icarus*, 158, 146, doi:10.1006/icar.2002.6856, ADS Link
- [229] Bus, S.J., Binzel, R.P., 2002, *Icarus*, 158, 106
- [230] 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
- [231] **[DMTR-102]**, Butler, M., 2019, *LDM-503-8b (Small Scale CCOB Data Access) Test Plan and Report*, DMTR-102, URL <https://dmtr-102.lsst.io/>, Vera C. Rubin Observatory Data Management Test Report
- [232] **[DMTR-121]**, Butler, M., 2019, *LDM-503-8 Spectrograph Data Acquisition Test Plan and Report*, DMTR-121, URL <https://dmtr-121.lsst.io/>, Vera C. Rubin Observatory Data Management Test Report
- [233] **[DMTR-171]**, Butler, M., 2020, *LDM-503-6: ComCam Interface Verification Readiness Test Plan and Report*, DMTR-171, URL <https://dmtr-171.lsst.io/>, Vera C. Rubin Observatory Data Management Test Report
- [234] **[DMTR-181]**, Butler, M., 2020, *LDM-503-10: DAQ Validation Test Plan and Report*, DMTR-181, URL <https://dmtr-181.lsst.io/>, Vera C. Rubin Observatory Data Management Test Report

- [235] **[DMTR-182]**, Butler, M., 2020, *LDM-503-10b: Large Scale CCOB Data Access Test Plan and Report*, DMTR-182, URL <https://dmtr-182.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [236] **[DMTR-61]**, Butler, M., Parsons, J., 2018, *LDM-503-04 and LDM-503-04b (Raw Image Archiving Service) Test Report*, DMTR-61, URL <https://ls.st/DMTR-61>
- [237] **[LDM-538]**, Butler, M., Parsons, J., Gower, M., 2018, *Raw Image Archiving Service Test Specification*, LDM-538, URL <https://ls.st/LDM-538>
- [238] Butler, N.R., Bloom, J.S., 2011, *AJ*, 141, 93 (arXiv:1008.3143), doi:10.1088/0004-6256/141/3/93, ADS Link
- [239] Buton, C., Copin, Y., Aldering, G., et al., 2013, *A&A*, 549, A8 (arXiv:1210.2619), doi:10.1051/0004-6361/201219834, ADS Link
- [240] **[PSTN-018]**, Buttler, M., 2020, *LSST Data Facility*, PSTN-018, URL <https://pstn-018.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [241] **[LPM-191]**, Calabrese, D., 2017, *Travel Policy*, LPM-191, URL <https://ls.st/LPM-191>
- [242] Campaign Storage, Campaign Storage, URL <http://campaignstorage.com/>
- [243] Cardelli, J.A., Clayton, G.C., Mathis, J.S., 1989, *ApJ*, 345, 245, doi:10.1086/167900, ADS Link
- [244] **[SQR-024]**, Carlin, J., 2018, *Enabling flake8 testing and Travis CI for existing DM repos*, SQR-024, URL <https://sqr-024.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [245] **[DMTR-201]**, Carlin, J., 2020, *LVV-P65 Fall 2019 Pipelines Release Acceptance Test Campaign Test Plan and Report*, DMTR-201, URL <https://dmtr-201.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [246] **[DMTR-251]**, Carlin, J., 2020, *Characterization Metric Report: Science Pipelines Version 20.0.0*, DMTR-251, URL <https://dmtr-251.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [247] **[DMTR-261]**, Carlin, J., 2020, *LVV-P71: Science Pipelines Release 20.0.0 Acceptance Test Campaign Test Plan and Report*, DMTR-261, URL <https://dmtr-261.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report

- [248] **[DMTR-281]**, Carlin, J., 2020, *Characterization Metric Report: Science Pipelines Version 21.0.0*, DMTR-281, URL <https://dmtr-281.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [249] **[LDM-742]**, Carlin, J., 2020, *Vera C. Rubin Observatory DM Infrastructure Verification Document*, LDM-742, URL <https://ldm-742.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [250] **[LDM-752]**, Carlin, J., 2020, *Vera C. Rubin Observatory DM Science Verification Document*, LDM-752, URL <https://ldm-752.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [251] **[LDM-753]**, Carlin, J., 2020, *Vera C. Rubin Observatory DM Science Verification Document*, LDM-753, URL <https://ldm-753.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [252] **[DMTR-311]**, Carlin, J., 2021, *Characterization Metric Report: Science Pipelines Version 22.0.0*, DMTR-311, URL <https://dmtr-311.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [253] **[DMTR-271]**, Carlin, J., 2022, *LDM-GEN3: Gen 3 Butler Acceptance Testing Test Plan and Report*, DMTR-271, URL <https://dmtr-271.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [254] **[DMTR-351]**, Carlin, J., 2022, *Characterization Metric Report: Science Pipelines Version 23.0.0*, DMTR-351, URL <https://dmtr-351.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [255] **[DMTR-191]**, Carlin, J., Krughoff, K.S., Comoretto, G., 2019, *Characterization Metric Report: Science Pipelines Version 19.0.0*, DMTR-191, URL <https://dmtr-191.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [256] **[Document-13760]**, Carlson, E., 2017, *Travel Request Instructions for AURA Employees*, Document-13760, URL <https://ls.st/Document-13760>
- [257] **[Document-13762]**, Carlson, E., 2017, *LSST Travel Summary Report Template*, Document-13762, URL <https://ls.st/Document-13762>
- [258] Carrasco Kind, M., Brunner, R., 2013, TPZ: Trees for Photo-Z, Astrophysics Source Code Library (ascl:1304.011), ADS Link

- [259] Carrasco Kind, M., Brunner, R.J., 2013, MNRAS, 432, 1483 (arXiv:1303.7269), doi:10.1093/mnras/stt574, ADS Link
- [260] Carrasco Kind, M., Brunner, R.J., 2014, MNRAS, 441, 3550 (arXiv:1404.6442), doi:10.1093/mnras/stu827, ADS Link
- [261] Casertano, S., Hut, P., 1985, ApJ, 298, 80, doi:10.1086/163589, ADS Link
- [262] **[SITCOMTN-012]**, (chair), C.C., (co Chair), D.C., (co chair), R.M., et al., 2021, *Rubin Observatory Construction Documentation Inventory*, SITCOMTN-012, URL <https://sitcomtn-012.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [263] **[SITCOMTN-014]**, (chair), C.C., (co Chair), D.C., (co chair), R.M., et al., 2021, *Project Documentation Future State Report*, SITCOMTN-014, URL <https://sitcomtn-014.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [264] **[DMTN-126]**, (chair), Y.A., Daniel, S., Dubois-Felsmann, G., et al., 2020, *Image Display Working Group Report*, DMTN-126, URL <https://dmtn-126.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [265] Chamberlin D., B.R., 1974, *SEQUEL: A Structured English Query Language*, Tech. rep., IBM research laboratory, URL <http://faculty.cse.tamu.edu/yurttas/PL/DBL/docs/sequel-1974.pdf>
- [266] 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
- [267] Chang, F., Dean, J., Ghemawat, S., et al., 2008, ACM Trans. Comput. Syst., 26, 4:1, doi:10.1145/1365815.1365816
- [268] 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>
- [269] **[DMTN-170]**, Chiang, H.F., 2021, *Ingesting reprocessed HSC catalog data to Qserv at NCSA*, DMTN-170, URL <https://dmtn-170.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [270] **[RTN-024]**, Chiang, H.F., Dubois, R., 2021, *Routine HSC/DC2 Processing at SLAC as early demonstrator*, RTN-024, URL <https://rtn-024.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [271] **[DMTN-088]**, Chiang, H.F., Johnson, M.W.G., 2018, *As-is HSC Reprocessing*, DMTN-088,
URL <https://dmtn-088.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [272] **[DMTN-157]**, Chiang, H.F., Lim, K.T., 2020, *Report of Google Cloud Proof of Concept 2020*,
DMTN-157, URL <https://dmtn-157.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [273] **[DMTN-160]**, Chiang, H.F., Thrush, S., 2020, *S18 HSC PDR1 reprocessing*, DMTN-160,
URL <https://dmtn-160.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [274] **[DMTR-31]**, Chiang, H.F., Daues, G., Thrush, S., The NCSA Team, 2017, *S17B HSC PDR1
Reprocessing Report*, DMTR-31, URL <https://ls.st/DMTR-31>
- [275] **[DMTN-137]**, Chiang, H.F., Bektesevic, D., the AWS-PoC team, 2020, *AWS Proof of Con-
cept Project Report*, DMTN-137, URL <https://dmtn-137.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [276] **[RTN-028]**, Chiang, J., 2022, *Computing resource estimates for running the DRP pipeline
at NERSC and on the SLAC SDF*, RTN-028, URL <https://rtn-028.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [277] Chorier, P., Tribolet, P., Destéfánis, G., 2006, In: Society of Photo-Optical Instrumenta-
tion Engineers (SPIE) Conference Series, vol. 6206 of Society of Photo-Optical Instru-
mentation Engineers (SPIE) Conference Series, 620601, doi:10.1117/12.669128, ADS
Link
- [278] 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
- [279] **[LDM-482]**, Ciardi, D., Dubois-Felsmann, G., 2016, *Data Access Policy for the Data Man-
agement Prototype DAC*, LDM-482, URL <https://ls.st/LDM-482>
- [280] Ciardi, D.R., 2016, LSST and Synergies with the VO, URL [http://dx.doi.org/10.5281/
zenodo.44635](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.

- [281] **[LDM-492]**, Ciardi, D.R., Wu, X., Dubois-Felsmann, G., 2016, *A Vision for the Science User Interface and Tools*, LDM-492, URL <https://ls.st/LDM-492>
- [282] Claeskens, J.F., Smette, A., Vandenbulcke, L., Surdej, J., 2006, MNRAS, 367, 879, doi:10.1111/j.1365-2966.2006.10024.x, ADS Link
- [283] **[SITCOMTN-002]**, Claver, C., 2020, *Performance Assessment of the LSST Startracker*, SITCOMTN-002, URL <https://sitcomtn-002.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [284] **[LSE-39]**, Claver, C., Dubois-Felsmann, G., 2010, *LSST Document Tree*, LSE-39, URL <https://ls.st/LSE-39>
- [285] **[LSE-79]**, Claver, C., The LSST Commissioning Planning Team, 2017, *System AI&T and Commissioning Plan*, LSE-79, URL <https://ls.st/LSE-79>
- [286] **[LSE-17]**, Claver, C., Angeli, G., Selvy, B., 2016, *Systems Engineering Management Plan*, LSE-17, URL <https://ls.st/LSE-17>
- [287] **[SITCOMTN-005]**, Claver, C., Bauer, A., Bechtol, K., et al., 2021, *Construction Completeness and Operations Readiness Criteria*, SITCOMTN-005, URL <https://sitcomtn-005.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [288] **[LSE-509]**, Claver, C.C., Ingraham, P., 2022, *SIT-Com Management Plan*, LSE-509, URL <https://lse-509.lsst.io/>,
Vera C. Rubin Observatory
- [289] **[PSTN-004]**, Claver, C.F., 2019, *EXAMPLE: LSST Observatory System Operations Readiness Report*, PSTN-004, URL <https://pstn-004.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [290] **[PSTN-033]**, Claver, C.F., 2019, *Active Optics Performance with LSST Commissioning Camera*, PSTN-033, URL <https://pstn-033.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [291] **[PSTN-034]**, Claver, C.F., 2019, *LSST Active Optics Performance with the LSST Science Camera*, PSTN-034, URL <https://pstn-034.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note

- [292] **[PSTN-041]**, Claver, C.F., 2019, *The LSST Science Platform as a Commissioning Tool*, PSTN-041, URL <https://pstn-041.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [293] **[PSTN-042]**, Claver, C.F., 2020, *Commissioning Science Data Quality Analysis Tools, Methods and Procedures*, PSTN-042, URL <https://pstn-042.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [294] **[LSE-29]**, Claver, C.F., The LSST Systems Engineering Integrated Project Team, 2017, *LSST System Requirements (LSR)*, LSE-29, URL <https://ls.st/LSE-29>
- [295] **[LSE-30]**, Claver, C.F., The LSST Systems Engineering Integrated Project Team, 2018, *Observatory System Specifications (OSS)*, LSE-30, URL <https://ls.st/LSE-30>
- [296] Claver, C.F., Sweeney, D.W., Tyson, J.A., et al., 2004, In: Oschmann, J.M., Jr. (ed.) *Ground-based Telescopes*, vol. 5489 of Proc. SPIE, 705–716, doi:10.1117/12.561728, ADS Link
- [297] Claver, C.F., Dubois-Felsmann, G.P., Delgado, F., et al., 2010, In: *American Astronomical Society Meeting Abstracts #215*, vol. 42 of Bulletin of the American Astronomical Society, #401.02, ADS Link
- [298] Claver, C.F., Chandrasekharan, S., Liang, M., et al., 2012, *Prototype pipeline for LSST wavefront sensing and reconstruction*, vol. 8444 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 84444P, doi:10.1117/12.926472
- [299] 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, 0, doi:10.1117/12.2056781, ADS Link
- [300] Colangelo, G., 2004, *Gaia System Requirements Document for Technical Assistance & Definition Phase*, Tech. rep., ESA,
Gaia-SRC-001, Issue 1.0
- [301] 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>
- [302] **[DMTN-106]**, Comoretto, G., 2019, *DM Release Process*, DMTN-106, URL <https://dmtn-106.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [303] **[DMTN-110]**, Comoretto, G., 2019, *Conda Environment Proposal for Science Pipelines*, DMTN-110, URL <https://dmtn-110.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [304] **[DMTN-174]**, Comoretto, G., 2020, *Rubin-Env Integration with DM Build Tools*, DMTN-174, URL <https://dmtn-174.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [305] **[DMTN-140]**, Comoretto, G., 2021, *Documentation Automation for the Verification and Validation of Rubin Observatory Software*, DMTN-140, URL <https://dmtn-140.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [306] **[DMTN-178]**, Comoretto, G., 2021, *Docsteady Usecases for Rubin Observatory Constructions*, DMTN-178, URL <https://dmtn-178.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [307] **[LDM-692]**, Comoretto, G., 2021, *DM Verification Control Document*, LDM-692, URL <https://ldm-692.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [308] Comoretto, G., Gallegos, J., Els, S., et al., 2012, In: Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, vol. 8449 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, doi:10.1117/12.926797, ADS Link
- [309] **[LDM-672]**, Comoretto, G., Guy, L.P., O'Mullane, W., et al., 2019, *LSST Software Release Management*, LDM-672, URL <https://ldm-672.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [310] 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 Proc. SPIE, 114500E, International Society for Optics and Photonics, SPIE, URL <https://doi.org/10.1117/12.2561604>, doi:10.1117/12.2561604
- [311] Connolly, A., 2002, Data Management for the LSST,
Invited talk. Paper not submitted to proceedings.
- [312] 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

- [313] Connolly, A., Boroson, T.A., 2002, In: Quinn, P.J. (ed.) *Observatory Operations to Optimize Scientific Return III*, vol. 4844 of Proc. SPIE, 225–231, doi:10.1117/12.460742, ADS Link
- [314] Connolly, A., LSST Team, 2002, In: *American Astronomical Society Meeting Abstracts*, vol. 34 of *Bulletin of the American Astronomical Society*, #134.05, ADS Link
- [315] **[PSTN-038]**, Connolly, A.J., 2020, *Science Validation of LSST Alert Processing*, PSTN-038, URL <https://pstn-038.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [316] 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
- [317] 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*, 14, doi:10.1117/12.2054953, ADS Link
- [318] **[ITTN-015]**, Constanzo, J., 2020, *Wireless Integration with NOIRLabs*, ITTN-015, URL <https://ittn-015.lsst.io/>,
Vera C. Rubin Observatory
- [319] **[ITTN-049]**, Constanzo, J., 2021, *Internet Edge Firewall Design*, ITTN-049, URL <https://ittn-049.lsst.io/>,
Vera C. Rubin Observatory
- [320] **[ITTN-050]**, Constanzo, J., 2021, *Long-Haul Network Architecture*, ITTN-050, URL <https://ittn-050.lsst.io/>,
Vera C. Rubin Observatory
- [321] Corporation, O., 2006, *Installing Oracle RAC 10g on Linux x86*, Tech. rep., Oracle
- [322] **[ITTN-016]**, Corral, L., 2020, *Wi-Fi Infrastructure High-Level Design (HLD)*, ITTN-016, URL <https://ittn-016.lsst.io/>,
Vera C. Rubin Observatory
- [323] **[ITTN-017]**, Corral, L., 2020, *VoIP Infrastructure High-Level Design (HLD)*, ITTN-017, URL <https://ittn-017.lsst.io/>,
Vera C. Rubin Observatory

- [324] **[ITTN-018]**, Corral, L., 2020, *Network Infrastructure High-Level Design (HLD)*, ITTN-018, URL <https://ittn-018.lsst.io/>, Vera C. Rubin Observatory
- [325] **[ITTN-023]**, Corral, L., 2020, *Cisco ISE Cluster Deployment*, ITTN-023, URL <https://ittn-023.lsst.io/>, Vera C. Rubin Observatory
- [326] Núñez Corrales, S., Cragin, M., White (Wonders), A., et al., 2018, doi:10.13140/RG.2.2.31543.78249
- [327] 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>
- [328] **[TSTN-018]**, Coughlin, E., 2020, *AT CSC Overview*, TSTN-018, URL <https://tstn-018.lsst.io/>, Vera C. Rubin Observatory
- [329] **[TSTN-003]**, Coughlin, E., Ribeiro, T., Reuter, M., Bovill, R., 2020, *Conda development guide.*, TSTN-003, URL <https://tstn-003.lsst.io/>, Vera C. Rubin Observatory
- [330] Coughlin, M.W., Deustua, S., Guyonnet, A., et al., 2018, In: Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, vol. 10704, 1070420, doi:10.1117/12.2309582, ADS Link
- [331] Cropper, M., Rosen, S., 2006, Spectra extraction, URL http://wwwhip.obspm.fr/gaia/cu6/workshop_2/CU6_w2_Cropper_extraction.pdf, CU6 Workshop2
- [332] Crosta, M.T., 2003, *Methods of Relativistic Astrometry for the analysis of astrometric data in the Solar System gravitational field*, Ph.D. thesis, Università di Padova
- [333] 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
- [334] 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

- [335] **[Document-11019]**, Crotts, A., 2011, *Standard Candle Relations and Photo-diversity of Type Ia Supernovae*, Document-11019, URL <https://ls.st/Document-11019>
- [336] Cuby, J.G., Bottini, D., Picat, J.P., 1998, In: D’Odorico, S. (ed.) *Optical Astronomical Instrumentation*, vol. 3355 of *Proc. SPIE*, 36–47, doi:10.1117/12.316769, ADS Link
- [337] 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
- [338] 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
- [339] **[SMTN-006]**, Daniel, S., Kalmbach, B., 2016, *Generating the CatSim Bright Stars Catalog*, SMTN-006, URL <https://smtn-006.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [340] 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>
- [341] **[DMTN-060]**, Daues, G., 2018, *Distributed Data Management and File Transfer Systems*, DMTN-060, URL <https://dmtn-060.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [342] **[DMTN-089]**, Daues, G., Chiang, H.F., 2018, *Notes on Singularity*, DMTN-089, URL <https://dmtn-089.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [343] de Bruijne, J., Kohley, R., Prusti, T., 2010, In: *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, vol. 7731 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, doi:10.1117/12.862062, ADS Link
- [344] de Bruijne, J.H.J., Lammers, U., Perryman, M.A.C., 2005, In: C. Turon, K. S. O’Flaherty, & M. A. C. Perryman (ed.) *The Three-Dimensional Universe with Gaia*, vol. 576 of *ESA Special Publication*, 67–+, ADS Link
- [345] de Felice, F., Preti, G., 2006, *Classical and Quantum Gravity*, 23, 5467, doi:10.1088/0264-9381/23/18/001, ADS Link
- [346] de Felice, F., Lattanzi, M.G., Vecchiato, A., Bernacca, P.L., 1997, In: R. M. Bonnet, E. Høg, P. L. Bernacca, L. Emiliani, A. Blaauw, C. Turon, J. Kovalevsky, L. Lindegren, H. Hassan,

- M. Bouffard, B. Strim, D. Heger, M. A. C. Perryman, & L. Woltjer (ed.) Hipparcos - Venice '97, vol. 402 of ESA Special Publication, 767–770, ADS Link
- [347] de Felice, F., Lattanzi, M.G., Vecchiato, A., Bernacca, P.L., 1998, A&A, 332, 1133, ADS Link
- [348] de Felice, F., Bucciarelli, B., Lattanzi, M.G., Vecchiato, A., 2001, A&A, 373, 336, doi:10.1051/0004-6361:20010499, ADS Link
- [349] 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
- [350] de Felice, F., Vecchiato, A., Crosta, M.T., Lattanzi, M.G., Bucciarelli, B., 2006, ApJ, 653, 1552, doi:10.1051/0004-6361:20042372, ADS Link
- [351] Dean, J., Ghemawat, S., 2008, Commun. ACM, 51, 107, doi:10.1145/1327452.1327492
- [352] 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
- [353] Dehnen, W., Binney, J.J., 1998, MNRAS, 298, 387 (arXiv:astro-ph/9710077), doi:10.1046/j.1365-8711.1998.01600.x, ADS Link
- [354] **[Document-28449]**, Delgado, F., 2018, *Project Response to Telescope & Site Software Review Report 2018-02*, Document-28449, URL <https://ls.st/Document-28449>
- [355] Delgado, F., Reuter, M.A., 2016, In: Observatory Operations: Strategies, Processes, and Systems VI, vol. 9910 of Proc. SPIE, 991013, doi:10.1117/12.2233630, ADS Link
- [356] 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, 15, doi:10.1117/12.2056898, ADS Link
- [357] 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>
- [358] DeWitt, D., 2008, MapReduce II, URL <https://web.archive.org/web/20090326224219/http://www.databasecolumn.com:80/2008/01/mapreduce-continued.html>
-

- [359] **[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*, Publication-141, URL <https://ls.st/Publication-141>
- [360] Dierckx, P., 1995, *C and Surface Fitting with Splines*, Oxford Science Publications, Oxford University Press, paperback edn.
- [361] **[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
- [362] **[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>
- [363] **[DMTN-104]**, DMLT, 2020, *Data Management Detailed Product Tree*, DMTN-104, URL <https://dmtn-104.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [364] Dorigo, A., Elmer, P., Furano, F., Hanushevsky, A., 2005, *WSEAS Transactions on Computers*, 4, 348, URL http://xrootd.org/presentations/xpaper3_cut_journal.pdf
- [365] Dossa, D., Matarazzo, C., Marshall, S., et al., 2005, In: *American Astronomical Society Meeting Abstracts*, vol. 37 of *Bulletin of the American Astronomical Society*, 1207, ADS Link
- [366] 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
- [367] Dowler, P., Rixon, G., Tody, D., 2011, *ArXiv e-prints* (arXiv:1110.0497), ADS Link
- [368] 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
- [369] Dowler P., T.D., Rixon G., 2010, *Table Access Protocol*, Tech. rep., IVOA, REC-TAP-1.0
- [370] **[SCTR-14]**, Drass, H., 2021, *LW-P63: Camera Hexapod Functional Re-verification Test Plan and Report*, SCTR-14, URL <https://sctr-14.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Report

- [371] **[SCTR-21]**, Drass, H., 2022, *LWV-P68: M2 Hexapod Functional Re-verification and Integration with SAL Test Plan and Report*, SCTR-21, URL <https://sctr-21.lsst.io/>, Vera C. Rubin Observatory Commissioning Technical Report
- [372] Drimmel, R., Spergel, D.N., 2001, *ApJ*, 556, 181, doi:10.1086/321556, ADS Link
- [373] 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
- [374] **[RTN-021]**, Dubois, R., O'Mullane, W., 2022, *Data Facilities Transition Plan*, RTN-021, URL <https://rtn-021.lsst.io/>, Vera C. Rubin Observatory Technical Note
- [375] **[LSE-75]**, Dubois-Felsmann, G., 2011, *Control System Interfaces between the Telescope and Data Management*, LSE-75, URL <https://ls.st/LSE-75>
- [376] **[LSE-76]**, Dubois-Felsmann, G., 2011, *Infrastructure Interfaces between Summit Facility and Data Management*, LSE-76, URL <https://ls.st/LSE-76>
- [377] **[LSE-77]**, Dubois-Felsmann, G., 2013, *Infrastructure Interfaces between Base Facility and Data Management*, LSE-77, URL <https://ls.st/LSE-77>
- [378] **[LSE-81]**, Dubois-Felsmann, G., 2013, *LSST Science and Project Sizing Inputs*, LSE-81, URL <https://ls.st/LSE-81>
- [379] **[LSE-69]**, Dubois-Felsmann, G., 2014, *Interface between the Camera and Data Management*, LSE-69, URL <https://ls.st/LSE-69>
- [380] **[LSE-130]**, Dubois-Felsmann, G., 2015, *Support-Data Exchanges between Data Management and Camera*, LSE-130, URL <https://ls.st/LSE-130>
- [381] **[LSE-68]**, Dubois-Felsmann, G., 2015, *Camera Data Acquisition Interface*, LSE-68, URL <https://ls.st/LSE-68>
- [382] **[LSE-140]**, Dubois-Felsmann, G., 2016, *Auxiliary Instrumentation Interface between Data Management and Telescope*, LSE-140, URL <https://ls.st/LSE-140>
- [383] **[DMTN-055]**, Dubois-Felsmann, G., 2017, *SuperTask Architecture and Design*, DMTN-055, URL <https://dmtn-055.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note

- [384] **[DMTN-076]**, Dubois-Felsmann, G., 2018, *Internet Endpoints for the Science Platform*, DMTN-076, URL <https://dmtn-076.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [385] **[DMTN-105]**, Dubois-Felsmann, G., 2019, *LSP Capabilities for AuxTel, Commissioning, and Early Operations*, DMTN-105, URL <https://dmtn-105.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [386] **[DMTN-139]**, Dubois-Felsmann, G., 2019, *LSST Image Service Architecture*, DMTN-139, URL <https://dmtn-139.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [387] **[DMTR-161]**, Dubois-Felsmann, G., 2020, *LDM-503-10a: LSP with Authentication and TAP Test Plan and Report*, DMTR-161, URL <https://dmtr-161.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [388] **[DMTR-211]**, Dubois-Felsmann, G., 2020, *DM-SUIT-8: Portal Integrated with Workspace Test Plan and Report*, DMTR-211, URL <https://dmtr-211.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [389] **[DMTN-136]**, Dubois-Felsmann, G., 2021, *LSST Science Platform Portal Aspect Design and Maintenance Manual*, DMTN-136, URL <https://dmtn-136.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [390] **[DMTN-186]**, Dubois-Felsmann, G., 2021, *Conceptual design of a IVOA-service-availability service and associated UI*, DMTN-186, URL <https://dmtn-186.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [391] **[DMTN-187]**, Dubois-Felsmann, G., 2021, *Options for the use and implementation of UWS services*, DMTN-187, URL <https://dmtn-187.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [392] **[DMTN-195]**, Dubois-Felsmann, G., 2021, *Multi-image FITS convention with ASDF WCSes*, DMTN-195, URL <https://dmtn-195.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [393] **[DMTN-202]**, Dubois-Felsmann, G., 2021, *Use cases and science requirements on a user batch facility*, DMTN-202, URL <https://dmtn-202.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [394] **[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*, DMTR-301, URL <https://dmtr-301.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [395] **[DMTR-341]**, Dubois-Felsmann, G., 2021, *LWV-P91 November 2021 Rubin Science Platform Verification Campaign Test Plan and Report Test Plan and Report*, DMTR-341, URL <https://dmtr-341.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [396] **[LSE-61]**, Dubois-Felsmann, G., Jenness, T., 2019, *Data Management System (DMS) Requirements*, LSE-61, URL <https://lse-61.lsst.io/>,
Vera C. Rubin Observatory
- [397] **[LSE-82]**, Dubois-Felsmann, G., Lim, K.T., 2013, *Science and Project Sizing Inputs Explanation*, LSE-82, URL <https://ls.st/LSE-82>
- [398] **[LSE-72]**, Dubois-Felsmann, G., Schumacher, G., Selvy, B., 2014, *OCS Command Dictionary for Data Management*, LSE-72, URL <https://ls.st/LSE-72>
- [399] **[LPM-231]**, Dubois-Felsmann, G., Ivezić, Z., Juric, M., 2018, *LSST Data Product Categories*, LPM-231, URL <https://lpm-231.lsst.io/>,
Vera C. Rubin Observatory
- [400] **[LDM-556]**, Dubois-Felsmann, G., Jenness, T., Bosch, J., et al., 2018, *Data Management Middleware Requirements*, LDM-556, URL <https://ldm-556.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [401] **[LDM-554]**, Dubois-Felsmann, G., Ciardi, D., Mueller, F., Economou, F., 2019, *Data Management LSST Science Platform Requirements*, LDM-554, URL <https://ldm-554.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [402] **[LDM-542]**, Dubois-Felsmann, G., Economou, F., Lim, K.T., et al., 2019, *Science Platform Design*, LDM-542, URL <https://ldm-542.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [403] **[DMTR-52]**, Dubois-Felsmann, G.P., Wu, X., 2018, *LDM-503-1 (WISE Data Loaded in PDAC) Test Report*, DMTR-52, URL <https://dmtr-52.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report

- [404] Dubois-Felsmann, G.P., Axelrod, T., Becker, A., et al., 2010, In: American Astronomical Society Meeting Abstracts #215, vol. 42 of Bulletin of the American Astronomical Society, #401.23, ADS Link
- [405] Dubois-Felsmann, G.P., Goldina, T., Ly, L., et al., 2016, In: American Astronomical Society Meeting Abstracts, vol. 227 of American Astronomical Society Meeting Abstracts, #348.06, doi:10.5281/zenodo.44653, ADS Link
- [406] **[LDM-540]**, Dubois-Felsmann, G.P., Guy, L., Carlin, J., et al., 2020, *LSST Science Platform Test Specification*, LDM-540, URL <https://ldm-540.lsst.io/>, Vera C. Rubin Observatory Data Management Controlled Document
- [407] 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
- [408] EADS Astrium, 2004, *GAIA Point Spread Function and internal straylight evaluation*, Tech. rep., ESA, GAIASYS.NT.00134.T.ASTR
- [409] EADS Astrium, 2010, *GAIA PLM TB/TV test specification: functional and performance tests*, Tech. rep., ESA, GAIA.ASF.SP.PLM.00174
- [410] 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
- [411] 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
- [412] **[SQR-004]**, Economou, F., 2015, *How to publish your proceedings with CoMPAAS*, SQR-004, URL <https://sqr-004.lsst.io/>, Vera C. Rubin Observatory SQuaRE Technical Note
- [413] 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

- [414] 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
- [415] **[DMTN-016]**, Economou, F., 2016, *Towards LSE-63 and beyond: A technical roadmap from QA to Level 3*, DMTN-016, URL <https://dmtn-016.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [416] **[SQR-010]**, Economou, F., 2017, *SQuaRE services: An Overview*, SQR-010, URL <https://sqr-010.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [417] **[PSTN-022]**, Economou, F., 2019, *LSST Science Platform*, PSTN-022, URL <https://pstn-022.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [418] **[DMTN-173]**, Economou, F., 2020, *The Observatory Logging Ecosystem*, DMTN-173, URL <https://dmtn-173.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [419] **[SQR-016]**, Economou, F., 2020, *Stack release playbook*, SQR-016, URL <https://sqr-016.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [420] **[SQR-036]**, Economou, F., 2020, *Operational models for generalist teams*, SQR-036, URL <https://sqr-036.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [421] **[DMTN-212]**, Economou, F., 2021, *The Rubin Science Platform*, DMTN-212, URL <https://dmtn-212.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [422] **[SQR-061]**, Economou, F., 2021, *Monitoring architecture for the RSP*, SQR-061, URL <https://sqr-061.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [423] **[SQR-056]**, Economou, F., Allbery, R., 2021, *Guidelines for gated updates for SQuaRE services (including Science Platform)*, SQR-056, URL <https://sqr-056.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note

- [424] **[DMTN-207]**, Economou, F., Jenness, T., 2021, *Architecture for the DM-to-EPO data export for Citizen Science projects*, DMTN-207, URL <https://dmtn-207.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [425] **[RTN-018]**, Economou, F., Sick, J., 2021, *Community Forum Delivery Note*, RTN-018, URL <https://rtn-018.lsst.io/>, Vera C. Rubin Observatory Technical Note
- [426] **[SQR-018]**, Economou, F., Thornton, A., 2019, *Investigations into JupyterLab as a basis for the LSST Science Platform*, SQR-018, URL <https://sqr-018.lsst.io/>, Vera C. Rubin Observatory SQuaRE Technical Note
- [427] **[LDM-522]**, Economou, F., Wood-Vasey, M., 2017, *DM Science Quality Data Assurance System Conceptual Design*, LDM-522, URL <https://ls.st/LDM-522>
- [428] **[DMTR-11]**, Economou, F., Swinbank, J., Bosch, J., Krughoff, S., 2015, *Characterization Metric Report: Science Pipelines Version 11.0 (Summer 2015)*, DMTR-11, URL <https://ls.st/DMTR-11>
- [429] **[SQR-005]**, Economou, F., Ivezić, Ž., Jenness, T., 2016, *Publication Board JIRA Project - User Note*, SQR-005, URL <https://sqr-005.lsst.io/>, Vera C. Rubin Observatory SQuaRE Technical Note
- [430] **[SQR-001]**, Economou, F., Peterson, J.M., Hoblitt, J., 2017, *Git LFS Architecture Note*, SQR-001, URL <https://sqr-001.lsst.io/>, Vera C. Rubin Observatory SQuaRE Technical Note
- [431] **[DMTN-124]**, Economou, F., Krughoff, S., Fausti, A., et al., 2019, *Automated Quality Control Systems*, DMTN-124, URL <https://dmtn-124.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [432] **[SQR-029]**, Economou, F., Krughoff, S., Sick, J., et al., 2019, *DM-EFD prototype implementation*, SQR-029, URL <https://sqr-029.lsst.io/>, Vera C. Rubin Observatory SQuaRE Technical Note
- [433] **[SQR-035]**, Economou, F., Sick, J., Banek, C., et al., 2019, *Deployment engineering for Kubernetes-based services.*, SQR-035, URL <https://sqr-035.lsst.io/>, Vera C. Rubin Observatory SQuaRE Technical Note
- [434] **[DMTN-185]**, Economou, F., Dubois-Felsmann, G., Bechtol, K., et al., 2021, *A Survey of Provenance*, DMTN-185, URL <https://dmtn-185.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note

- [435] **[RTN-019]**, Economou, F., Thornton, A., Banek, C., Allbery, R., Krughoff, S., 2021, *Science Platform Use for Summit Operations: Delivery Note*, RTN-019, URL <https://rtn-019.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [436] **[DMTN-109]**, Ettl, S., Jones, L., Jurić, M., 2019, *LSST Asteroid Discovery Rates*, DMTN-109, URL <https://dmtn-109.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [437] EMC, 2011, *Greenplum Database 4.1 Administrator Guide*, Tech. rep., EMC Corporation, URL <http://www.greenplum.com/community/downloads/documentation/>
- [438] EMC, 2011, *Greenplum Database 4.1 Installation Guide*, Tech. rep., EMC Corporation, URL <http://www.greenplum.com/community/downloads/documentation/>
- [439] **[LSE-89]**, Emmons, B., Bauer, A., 2018, *Education and Public Outreach Requirements*, LSE-89, URL <https://ls.st/LSE-89>
- [440] ESA, 1997, *The Hipparcos and Tycho Catalogues*, ESA, ESA SP-1200
- [441] ESA, 2000, *GAIA — Composition, Formation and Evolution of the Galaxy*, Tech. rep., ESA, Concept and Technology Study Report, ESA-SCI(2000)4
- [442] **[ESA/SPC(2009)6]**, ESA, 2009, *Licensing of Data Processing Software for the Science Programme*, ESA/SPC(2009)6
- [443] **[ECSS-M-30-01A]**, ESA Publications Division, 1999, *Organization and Conduct of Reviews*, ECSS-M-30-01A
- [444] **[ECSS-M-00-02A]**, ESA Publications Division, 2000, *Project Organisation*, ECSS-M-00-02A
- [445] **[ECSS-E-10-6a]**, ESA Publications Division, 2003, *Functional and Technical Specifications*, ECSS-E-10 part 6a
- [446] **[ECSS-Q-80B]**, ESA Publications Division, 2003, *Software Product Assurance*, ECSS-Q-80B
- [447] **[ECSS-M-10B]**, ESA Publications Division, 2003, *Project Breakdown Structures*, ECSS-M-10B

- [448] **[ECSS-M-20B]**, ESA Publications Division, 2003, *Project Organisation*,
ECSS-M-20B
- [449] **[ECSS-M-30B]**, ESA Publications Division, 2003, *Project Phasing and Planning*,
ECSS-M-30B
- [450] **[ECSS-M-40B]**, ESA Publications Division, 2003, *Space Project Management - configuration management*,
ECSS-M-40B
- [451] **[ECSS-M-50B]**, ESA Publications Division, 2003, *Space Project Management - information/documentation management*,
ECSS-M-50B Draft 8
- [452] **[ECSS-E-40-1B]**, ESA Publications Division, 2003, *Space engineering - Software - Part 1: Principles and requirements*,
ECSS-E-40 Part 1B
- [453] **[ECSS-E-40-2B]**, ESA Publications Division, 2005, *Space engineering - Software - Part 2: Document Requirements Definitions*,
ECSS-E-40 Part 2B
- [454] **[ECSS-M-ST-60C]**, ESA Publications Division, 2008, *Space project management - Cost and schedule management*,
ECSS-M-ST-60C
- [455] **[ECSS-M-ST-10C]**, ESA Publications Division, 2008, *Space project management - Project planning and implementation*,
ECSS-M-ST-10C
- [456] **[SITCOMTN-035]**, Esteves, J., 2022, *Checking The AuxTel Pointing Model*, SITCOMTN-035, URL <https://sitcomtn-035.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [457] Evans, N.W., Belokurov, V., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) ESA SP-576: The Three-Dimensional Universe with Gaia, 385–+, ADS Link
- [458] Eyer, L., 1998, Ph.D. Thesis, ADS Link
- [459] Eyer, L., 2002, Acta Astronomica, 52, 241 (arXiv:astro-ph/0206074), ADS Link
- [460] Eyer, L., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) ESA SP-576: The Three-Dimensional Universe with Gaia, 513–+, ADS Link

- [461] Eyer, L., 2006, In: Sterken, C., Aerts, C. (eds.) *Astronomical Society of the Pacific Conference Series*, 15–+, ADS Link
- [462] Eyer, L., 2006, *Memorie della Societa Astronomica Italiana*, 77, 549 (arXiv:astro-ph/0511460), ADS Link
- [463] Eyer, L., Blake, C., 2002, In: Aerts, C., Bedding, T.R., Christensen-Dalsgaard, J. (eds.) *ASP Conf. Ser. 259: IAU Colloq. 185: Radial and Nonradial Pulsations as Probes of Stellar Physics*, 160–+, ADS Link
- [464] Eyer, L., Blake, C., 2005, *MNRAS*, 358, 30 (arXiv:astro-ph/0406333), doi:10.1111/j.1365-2966.2005.08651.x, ADS Link
- [465] Eyer, L., Cuypers, J., 2000, In: Szabados, L., Kurtz, D. (eds.) *ASP Conf. Ser. 203: IAU Colloq. 176: The Impact of Large-Scale Surveys on Pulsating Star Research*, 71–72, ADS Link
- [466] Eyer, L., Grenon, M., 1997, In: *ESA SP-402: Hipparcos - Venice '97*, 467–472, ADS Link
- [467] Eyer, L., Mignard, F., 2005, *MNRAS*, 361, 1136, doi:10.1111/j.1365-2966.2005.09266.x, ADS Link
- [468] Fabricius, C., Torra, J., *GDAAS Algorithm Preparation Guidelines*, CCB-GDAAS-002
- [469] **[TSTN-032]**, Fagrelius, P., 2022, *AuxTel Illumination System Handbook*, TSTN-032, URL <https://tstn-032.lsst.io/>, Vera C. Rubin Observatory
- [470] **[SQR-008]**, Fausti, A., 2016, *SQUASH QA database*, SQR-008, URL <https://sqr-008.lsst.io/>, Vera C. Rubin Observatory SQuaRE Technical Note
- [471] **[SQR-022]**, Fausti, A., 2018, *Creating new charts with the Bokeh Models API*, SQR-022, URL <https://sqr-022.lsst.io/>, Vera C. Rubin Observatory SQuaRE Technical Note
- [472] **[SQR-027]**, Fausti, A., 2018, *Getting SQuaSH metrics to Honeycomb*, SQR-027, URL <https://sqr-027.lsst.io/>, Vera C. Rubin Observatory SQuaRE Technical Note

- [473] **[SQR-033]**, Fausti, A., 2019, *QA Strategy Working Group recommendations for SQuaSH*, SQR-033, URL <https://sqr-033.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [474] **[SQR-009]**, Fausti, A., 2020, *The SQuaSH metrics dashboard*, SQR-009, URL <https://sqr-009.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [475] **[SQR-031]**, Fausti, A., 2020, *EFD deployment instructions*, SQR-031, URL <https://sqr-031.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [476] **[SQR-038]**, Fausti, A., 2020, *Implementation plan for the LDF EFD*, SQR-038, URL <https://sqr-038.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [477] **[SQR-034]**, Fausti, A., 2021, *EFD Operations*, SQR-034, URL <https://sqr-034.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [478] **[SQR-050]**, Fausti, A., 2021, *The EFD replication service*, SQR-050, URL <https://sqr-050.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [479] **[SQR-053]**, Fausti, A., 2021, *Representing missing values in the EFD*, SQR-053, URL <https://sqr-053.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [480] **[SQR-057]**, Fausti, A., 2021, *Using Velero to back up Kubernetes resources*, SQR-057, URL <https://sqr-057.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [481] **[SQR-058]**, Fausti, A., 2021, *The EFD Transformation Service*, SQR-058, URL <https://sqr-058.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [482] **[SQR-067]**, Fausti, A., 2022, *Sasquatch: SQuaRE's Telemetry Service*, SQR-067, URL <https://sqr-067.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [483] **[SQR-068]**, Fausti, A., 2022, *Sasquatch: beyond the EFD*, SQR-068, URL <https://sqr-068.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note

- [484] **[SQR-026]**, Fausti, A., Economou, F., Krughoff, S., 2018, *Periodic report generation and publication via notebook templates*, SQR-026, URL <https://sqr-026.lsst.io/>, Vera C. Rubin Observatory SQuaRE Technical Note
- [485] **[Publication-142]**, Ferguson, H.C., 2011, *Science White Paper for LSST Deep-Drilling Field Observations: LSST Deep Drilling for Galaxies*, Publication-142, URL <https://lsst/Publication-142>
- [486] Fernandez, M.M., 2005, *Gaia TT&C Subsystem Analysis*, Tech. rep., ESA, Note prepared at request of Project team
- [487] Fernique, P., Allen, M., Boch, T., et al., 2017, HiPS - Hierarchical Progressive Survey Version 1.0, IVOA Recommendation 19 May 2017 (arXiv:1708.09704), ADS Link
- [488] Few, S., 2013, *Information Dashboard Design*, Analytics Press, 2 edn.
- [489] Fienga, A., Laskar, J., Simon, J.L., Manche, H., Gastineau, M., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) ESA SP-576: The Three-Dimensional Universe with Gaia, 293–+, ADS Link
- [490] Filippenko, A.V., 1982, PASP, 94, 715, doi:10.1086/131052, ADS Link
- [491] **[DMTN-045]**, Findeisen, K., 2017, *PSF Fitting: Literature Overview*, DMTN-045, URL <https://dmtn-045.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [492] **[DMTN-054]**, Findeisen, K., 2017, *Conventions Used by ap_verify*, DMTN-054, URL <https://dmtn-054.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [493] **[DMTN-057]**, Findeisen, K., 2018, *Integrating Verification Metrics into the LSST DM Stack*, DMTN-057, URL <https://dmtn-057.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [494] **[DMTN-098]**, Findeisen, K., 2019, *Metrics Measurement Framework Design*, DMTN-098, URL <https://dmtn-098.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [495] **[DMTN-120]**, Findeisen, K., Bosch, J., 2020, *Improving Extensibility in afw.image.Exposure and Replacing afw.table.io*, DMTN-120, URL <https://dmtn-120.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note

- [496] **[SITCOMTN-033]**, Fisher-Levine, M., 2022, *SITCOM Developer Guide*, SITCOMTN-033, URL <https://sitcomtn-033.lsst.io/>, Vera C. Rubin Observatory Commissioning Technical Note
- [497] 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/>
- [498] Fornies-Marquina, J., Letosa, J., García-Gracia, M., Artacho, J., 1997, IEEE transactions on magnetics, 33, 1456
- [499] 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
- [500] 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
- [501] Fraedrich, R., Schneider, J., Westermann, R., 2009, IEEE Transactions on Visualization and Computer Graphics (Proceedings Visualization / Information Visualization 2009), 15, to appear, doi:xx.xxxx/xxxxxxx.xxxxxxx
- [502] Freemon, D.M., 2013, ArXiv e-prints (arXiv:1303.7467), ADS Link
- [503] Freemon, D.M., 2014, ArXiv e-prints (arXiv:1410.1939), ADS Link
- [504] Freemon, D.M., Becla, J., Dubois-Felsmann, G.P., et al., 2010, In: Astronomical Data Analysis Software and Systems XX, LSST Corporation
- [505] 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 Proc. SPIE, 0, doi:10.1117/12.926596, ADS Link
- [506] **[LDM-143]**, Freemon, M., Pietrowicz, S., 2013, *Site Specific Infrastructure Estimation Explanation*, LDM-143, URL <https://ls.st/LDM-143>
- [507] **[LDM-144]**, Freemon, M., Pietrowicz, S., Alt, J., 2016, *Site Specific Infrastructure Estimation Model*, LDM-144, URL <https://ls.st/LDM-144>
- [508] Furnell, R., 2005, *Gaia Space/Ground Interface Control Document Volume 1: RF Interface*, Tech. rep., ESA/ESOC, GAIA-ESC-ICD-515

- [509] Furnell, R., 2005, *Gaia Space/Ground Interface Control Document Volume 2: Generic Packet Structure*, Tech. rep., ESA/ESOC, GAIA-ESC-ICD-516
- [510] Gai, M., Busonero, D., Gardiol, D., Loreggia, D., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) ESA SP-576: *The Three-Dimensional Universe with Gaia*, 433–+, ADS Link
- [511] Gaia Acronyms, URL <http://www.rssd.esa.int/Ageneral/Projects/GAIA/paramdb/glossary.txt>, Gaia Acronyms List
- [512] Gaia Collaboration, Brown, A.G.A., Vallenari, A., et al., 2016, *A&A*, 595, A2 (arXiv:1609.04172), doi:10.1051/0004-6361/201629512
- [513] 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
- [514] Gamma, E., Helm, R., Johnson, R., Vlissides, J., 1994, *Design Patterns: Elements of Reusable Object-Oriented Software*, Addison-Wesley Professional Computing Series
- [515] **[DMTN-029]**, Gaponenko, I., 2017, *Loading SDSS Stripe82 Catalogs into PDAC*, DMTN-029, URL <https://dmtn-029.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [516] Gardiol, D., Loreggia, D., Mannu, S., et al., 2004, In: Craig, S.C., Cullum, M.J. (eds.) *Modeling and Systems Engineering for Astronomy*, Proc. SPIE, 461–470, doi:10.1117/12.550356, ADS Link
- [517] Gaudet, S., Hill, N., Armstrong, P., et al., 2010, In: Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, vol. 7740 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, doi:10.1117/12.858026, ADS Link
- [518] **[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*, Publication-143, URL <https://ls.st/Publication-143>
- [519] **[DMTN-011]**, Gee, P., 2016, *Testing Shear Bias Using Galsim Galaxy Simulations*, DMTN-011, URL <https://dmtn-011.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note

- [520] **[LPM-18]**, Gessner, C., Krabbendam, V., 2014, *Safety Policy*, LPM-18, URL <https://lsst/LPM-18>
- [521] Gibson, R., 2011, In: *Very Wide Field Surveys in the Light of Astro2010*, University of Washington, Space Telescope Science Institute
- [522] 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
- [523] Gielesen, W., de Bruijn, D., van den Dool, T., et al., 2012, In: *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, vol. 8442 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, doi:10.1117/12.926322, ADS Link
- [524] **[Document-24920]**, Gill, R., 2018, *LSST COMMUNICATIONS CODE OF CONDUCT*, Document-24920, URL <https://lsst/Document-24920>
- [525] **[Document-28973]**, Gill, R., 2018, *LSST MEETINGS CODE OF CONDUCT*, Document-28973, URL <https://lsst/Document-28973>
- [526] Gill, R., Gracia, G., Lupton, R.H., O'Mullane, W., 2014, In: *Modeling, Systems Engineering, and Project Management for Astronomy VI*, vol. 9150 of *SPIE*, 91501E, doi:10.1117/12.2054745, ADS Link
- [527] Gilmore, G.F., de Boer, K.S., Favata, F., et al., 2000, In: Breckinridge, J.B., Jakobsen, P. (eds.) *Proc. SPIE Vol. 4013*, p. 453-472, *UV, Optical, and IR Space Telescopes and Instruments*, James B. Breckinridge; Peter Jakobsen; Eds., vol. 4013 of *Presented at the Society of Photo-Optical Instrumentation Engineers (SPIE) Conference*, 453-472, ADS Link
- [528] **[Document-37650]**, Gizis, J., Stars, M.W..L.V.S.C., 2021, *LSST Long-Haul Networks (LHN) End-to-end Test Plan*, Document-37650, URL <https://lsst/Document-37650>
- [529] **[DMTN-127]**, Glasgow, J., Korrapati, H., 2019, *Survey of Tools for LSST Client Data Distribution*, DMTN-127, URL <https://dmtn-127.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [530] Globus, *Globus Transfer API Documentation*, URL <https://docs.globus.org/api/transfer/>

- [531] 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
- [532] Gomez, A.E., Grenier, S., Udry, S., et al., 1997, In: *ESA SP-402: Hipparcos - Venice '97*, 621–624, ADS Link
- [533] **[ITTN-014]**, Gonzalez, I., 2022, *Computing Infrastructure*, ITTN-014, URL <https://ittn-014.lsst.io/>,
Vera C. Rubin Observatory
- [534] **[ITTN-028]**, Gonzalez, I., Tapia, D., 2020, *IT User Support - Remote Work*, ITTN-028, URL <https://ittn-028.lsst.io/>,
Vera C. Rubin Observatory
- [535] 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
- [536] **[DMTN-101]**, the Good, R.L., 2018, *Verifying LSST Calibration Data Products*, DMTN-101, URL <https://dmtn-101.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [537] **[ITTN-035]**, Goodenow, I., 2021, *Move from Jira On-Premise to Atlassian Cloud*, ITTN-035, URL <https://ittn-035.lsst.io/>,
Vera C. Rubin Observatory
- [538] **[ITTN-051]**, Goodenow, I., 2021, *Moving Jira Software On-Premise service to Atlassian Jira Cloud*, ITTN-051, URL <https://ittn-051.lsst.io/>,
Vera C. Rubin Observatory
- [539] **[LPM-101]**, Goodenow, I., McKercher, R., 2013, *Tucson Site Disaster Recovery Plan*, LPM-101, URL <https://ls.st/LPM-101>
- [540] Górski, K.M., Hivon, E., Banday, A.J., et al., 2005, *ApJ*, 622, 759 (arXiv:astro-ph/0409513), doi:10.1086/427976
- [541] Górski, K.M., Hivon, E., Banday, A.J., et al., 2005, *ApJ*, 622, 759 (arXiv:astro-ph/0409513), doi:10.1086/427976, ADS Link
- [542] Gosling, J., Joy, B., Steele, G., 2000, *The Java Language Specification*, Addison-Wesley, 2nd edn.

- [543] Gould, A., 2013, ArXiv e-prints (arXiv:1304.3455), ADS Link
- [544] **[DMTN-059]**, Gower, M., 2017, *Batch Processing Facade Prototype 0.1*, DMTN-059, URL <https://dmtn-059.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [545] **[DMTN-122]**, Gower, M., Lim, K.T., 2019, *Data Backbone Design*, DMTN-122, URL <https://dmtn-122.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [546] **[DMTN-123]**, Gower, M., Lim, K.T., 2019, *Batch Production Services Design*, DMTN-123, URL <https://dmtn-123.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [547] **[LDM-635]**, Gower, M., Butler, M., Lim, K.T., 2018, *Data Management Data Backbone Services Requirements*, LDM-635, URL <https://lsst.org/lsm/lsm-635>
- [548] GPD, URL <http://www.rssd.esa.int/Gaia/paramdb>,
Gaia Parameter Database
- [549] GPFS, IBM Spectrum Scale, URL <https://www.ibm.com/us-en/marketplace/scale-out-file-and-object-storage>
- [550] **[DMTN-231]**, Graham, M., 2022, *Detection Efficiencies for diaSources.*, DMTN-231, URL <https://dmtn-231.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [551] **[RTN-002]**, Graham, M., Adair, C., Annis, J., et al., 2021, *Community Engagement Use Cases*, RTN-002, URL <https://rtn-002.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [552] 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 Proc. SPIE, 0 (arXiv:1206.4035), doi:10.1117/12.926577, ADS Link
- [553] **[DMTN-065]**, Graham, M.L., Jurić, M., Lim, K.T., Bellm, E., 2019, *Data Management and LSST Special Programs*, DMTN-065, URL <https://dmtn-065.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [554] **[DMTN-102]**, Graham, M.L., Bellm, E., Guy, L., et al., 2020, *LSST Alerts: Key Numbers*, DMTN-102, URL <https://dmtn-102.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [555] **[DMTN-107]**, Graham, M.L., Bellm, E.C., Slater, C.T., et al., 2020, *Options for Alert Production in LSST Operations Year 1*, DMTN-107, URL <https://dmtn-107.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [556] **[DMTN-155]**, Graham, M.L., Guy, L.P., Swinbank, J., , the DM System Science Team, 2020, *Interim Model for Community Support*, DMTN-155, URL <https://dmtn-155.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [557] **[RTN-006]**, Graham, M.L., Adair, C.L., Annis, J., et al., 2021, *Community Engagement Model*, RTN-006, URL <https://rtn-006.lsst.io/>, Vera C. Rubin Observatory Technical Note
- [558] **[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*, DMTN-049, URL <https://dmtn-049.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [559] Graham M., R.G., Morris D., 2009, *VOSpace specification*, Tech. rep., IVOA, REC-VOSpace-1.15
- [560] Graham M., R.G., Morris D., 2011, *VOSpace specification*, Tech. rep., IVOA, REC-VOSpace-2.0
- [561] 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/>
- [562] Gray, J., Chong, W., Barclay, T., Szalay, A., vandenBerg, J., 2002, arXiv e-prints, cs/0208011 (arXiv:cs/0208011), ADS Link
- [563] 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
- [564] Greenbaum, A., 1997, *Iterative Methods for Solving Linear Systems*, SIAM
- [565] Gregory, P.C., 2010, *Bayesian Logical Data Analysis for the Physical Sciences*, Cambridge University Press, 1 edn.
- [566] Greisen, E.W., Calabretta, M.R., 2002, A&A, 395, 1061 (arXiv:astro-ph/0207407), doi:10.1051/0004-6361:20021326

- [567] 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*, 1, doi:10.1117/12.2056711, ADS Link
- [568] 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>
- [569] Groom, D.E., Eberhard, P.H., Holland, S.E., et al., 2000, In: P. Amico & J. W. Beletic (ed.) *Astrophysics and Space Science Library*, vol. 252 of *Astrophysics and Space Science Library*, 201–+, ADS Link
- [570] Grossman, R., Gu, Y., Hong, X., et al., 2004, *Future Generation Computer Systems*, 21, 501, doi:10.1016/j.future.2004.10.007
- [571] **[DMTN-147]**, Gruendl, R., 2020, *LDF Bulk Download Services*, DMTN-147, URL <https://dmtn-147.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [572] **[DMTR-231]**, Gruendl, R., 2020, *LDM-503-11a: ComCam OPS Readiness Test Plan and Report*, DMTR-231, URL <https://dmtr-231.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [573] **[DMTN-159]**, Gruendl, R., O’Mullane, W., Blum, R., MacArthur, L., 2020, *Report on Operations Rehearsal #2*, DMTN-159, URL <https://dmtn-159.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [574] **[DMTN-068]**, Gruendl, R.A., 2018, *Lossy Compression WG Report*, DMTN-068, URL <https://dmtn-068.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [575] Grün, E., Zook, H.A., Fechtig, H., Giese, R., 1985, *Icarus*, 62, 244, doi:10.1016/0019-1035(85)90121-6, ADS Link
- [576] Guerrier, A., , *Software Design Document for Wavelength Calibration*, Tech. rep., ESA, GAIA-C6-TN-OPM-AG-003-1
- [577] Guerrier, A., , *Software Design Document for Apply Calibration*, Tech. rep., ESA, GAIA-C6-SP-OPM-AG-004-1
- [578] Gunn, A.G., Hall, J.C., Lockwood, G.W., Doyle, J.G., 1996, *A&A*, 305, 146, ADS Link

- [579] **[DMTN-146]**, Guy, L., 2020, *Virtual Rubin Algorithms Workshop.*, DMTN-146, URL <https://dmtn-146.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [580] **[DMTN-152]**, Guy, L., 2020, *Rubin Algorithms Workshop - Scientific Summary*, DMTN-152, URL <https://dmtn-152.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [581] **[RTN-007]**, Guy, L., 2020, *Charge to the Rubin Operations Survey Evaluation Working Group*, RTN-007, URL <https://rtn-007.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [582] **[SITCOMTN-008]**, Guy, L., 2020, *Charge to the Integration Planning Group*, SITCOMTN-008, URL <https://sitcomtn-008.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [583] **[SITCOMTN-020]**, Guy, L., 2021, *SITCOM Milestone Summary*, SITCOMTN-020, URL <https://sitcomtn-020.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [584] **[DMTR-361]**, Guy, L., 2022, *LWV-P96 LDM-503-14 Test Plan and Report*, DMTR-361, URL <https://dmtr-361.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [585] **[RTN-038]**, Guy, L., 2022, *Rubin Science Performance Metrics*, RTN-038, URL <https://rtn-038.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [586] **[RTN-009]**, Guy, L., Roberts, A., Ivezić, Ž., 2020, *Rubin Observatory Initial Key Performance Metrics*, RTN-009, URL <https://rtn-009.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [587] **[LDM-639]**, Guy, L., Wood-Vasey, W., Bellm, E., et al., 2020, *LSST Data Management Acceptance Test Specification*, LDM-639, URL <https://ldm-639.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [588] **[LSE-439]**, Guy, L., Bechtol, K., Carlin, J., et al., 2021, *Rubin Observatory LSST Science Validation Plan*, LSE-439, URL <https://lse-439.lsst.io/>,
Vera C. Rubin Observatory

- [589] **[PSTN-024]**, Guy, L.P., 2019, *LSST Data Management System Verification and Validation*, PSTN-024, URL <https://pstn-024.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [590] **[DMTN-211]**, Guy, L.P., 2022, *Faro: A framework for measuring the scientific performance of petascale Rubin Observatory data products*, DMTN-211, URL <https://dmtn-211.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [591] **[RTN-011]**, Guy, L.P., Bellm, E., Blum, B., et al., 2021, *Rubin Observatory Plans for an Early Science Program*, RTN-011, URL <https://rtn-011.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [592] 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, 614 – 619, International Society for Optics and Photonics, SPIE, URL <https://doi.org/10.1117/12.2055921>,
doi:10.1117/12.2055921
- [593] 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
- [594] 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>
- [595] 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>
- [596] 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>
- [597] Handy, C., 1993, *Understanding organizations*, Penguin Books, London, England New York, N.Y., USA
- [598] Hankins, T.L., 1980, *Sir William Rowan Hamilton*, The Johns Hopkins University Press
- [599] 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>

- [600] Harrison, D.L., 2011, *Experimental Astronomy*, 31, 157 (arXiv:1107.0210), doi:10.1007/s10686-011-9240-7, ADS Link
- [601] Harrison P., R.G., 2010, *Universal Worker Service Pattern*, Tech. rep., IVOA, REC-UWS-1.0
- [602] **[DMTN-063]**, Hasan, I., Gee, P., Tyson, T., 2017, *Testing the LSST DM Stack on Deep Lens Survey Data*, DMTN-063, URL <https://dmtn-063.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [603] Hassan, A., Fluke, C.J., 2011, ArXiv e-prints (arXiv:1102.5123), ADS Link
- [604] Haywood, M., Robin, A.C., Creze, M., 1997, *A&A*, 320, 428, ADS Link
- [605] Hechler, M., 2004, ESOC, private communication
- [606] Hechler, M., 2006, *GAIA Consolidated Report on Mission Analysis (CRMA)*, Tech. rep., ESA, European Space Operations Centre, GAIA-ESC-RP-0001, Issue 2.0
- [607] Hees, A., Hestroffer, D., Le Poncin-Lafitte, C., David, P., 2015, ArXiv e-prints (arXiv:1509.06868), ADS Link
- [608] **[SITCOMTN-027]**, (he/him), E.P., 2022, *Donut analysis for wavefront sensor verification*, SITCOMTN-027, URL <https://sitcomtn-027.lsst.io/>, Vera C. Rubin Observatory Commissioning Technical Note
- [609] Helmi, A., de Zeeuw, P.T., 2000, *MNRAS*, 319, 657 (arXiv:astro-ph/0007166), ADS Link
- [610] **[DMTN-053]**, Hernandez, F., Boutigny, D., Tortay, L., 2017, *Observations on I/O activity induced by ingestImages.py and processCcd.py*, DMTN-053, URL <https://dmtn-053.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [611] **[RTN-029]**, Hernandez, F., Boulc'h, Q.L., Bosch, J., et al., 2022, *Procedure for creating a butler repository at FrDF for Data Preview 0.2*, RTN-029, URL <https://rtn-029.lsst.io/>, Vera C. Rubin Observatory Technical Note
- [612] **[TSTN-008]**, Heyer, A., 2020, *TMA User Guides*, TSTN-008, URL <https://tstn-008.lsst.io/>, Vera C. Rubin Observatory

- [613] **[TSTN-009]**, Heyer, A., 2020, *Coating Chamber*, TSTN-009, URL <https://tstn-009.lsst.io/>,
Vera C. Rubin Observatory
- [614] **[TSTN-011]**, Heyer, A., 2020, *Technote for Andy to repurpose*, TSTN-011, URL <https://tstn-011.lsst.io/>,
Vera C. Rubin Observatory
- [615] **[TSTN-005]**, Heyer, A., Coughlin, E., 2020, *TSSW Documentation Guide*, TSTN-005, URL <https://tstn-005.lsst.io/>,
Vera C. Rubin Observatory
- [616] Hildebrandt, H., Arnouts, S., Capak, P., et al., 2010, A&A, 523, A31 (arXiv:1008.0658), doi:10.1051/0004-6361/201014885, ADS Link
- [617] 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
- [618] **[SQR-002]**, Hoblitt, J., 2015, *Binary Science Pipeline Software Distribution*, SQR-002, URL <https://sqr-002.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [619] **[SQR-028]**, Hoblitt, J., 2018, *T&S Jenkins*, SQR-028, URL <https://sqr-028.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [620] **[ITTN-003]**, Hoblitt, J., 2019, *[Proposed] Improved Tucson Lab Network Architecture*, ITTN-003, URL <https://ittn-003.lsst.io/>,
Vera C. Rubin Observatory
- [621] **[ITTN-004]**, Hoblitt, J., 2019, *[Proposed] LSST On-Prem Domain Name Service (DNS)*, ITTN-004, URL <https://ittn-004.lsst.io/>,
Vera C. Rubin Observatory
- [622] **[ITTN-005]**, Hoblitt, J., 2019, *Puppet Standards and Practices*, ITTN-005, URL <https://ittn-005.lsst.io/>,
Vera C. Rubin Observatory
- [623] **[ITTN-002]**, Hoblitt, J., 2020, *[Proposed] LSST On-Prem Deployment Platform*, ITTN-002, URL <https://ittn-002.lsst.io/>,
Vera C. Rubin Observatory

- [624] **[SQR-030]**, Hoblitt, J., 2020, *Jenkins Administration*, SQR-030, URL <https://sqr-030.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [625] **[ITTN-019]**, Hoblitt, J., Frez, R., Kollross, M., 2020, *LHN Postmortem #1*, ITTN-019, URL <https://ittn-019.lsst.io/>,
Vera C. Rubin Observatory
- [626] **[ITTN-011]**, Hoblitt, J., Thebo, A., Reinking, H., 2020, *Bootstrapping the Deployment Platform*, ITTN-011, URL <https://ittn-011.lsst.io/>,
Vera C. Rubin Observatory
- [627] Hoff, T., 2008, Skype Plans For PostgreSQL To Scale To 1 Billion Users, URL <http://highscalability.com/skype-plans-postgresql-scale-1-billion-users>
- [628] Høg, E., 1994, *A new era of global astrometry and photometry from space and ground*, Tech. rep., CUO,
Contribution at the G. Colombo Memorial Conference : Ideas for Space Research after the Year 2000.
- [629] Høg, E., Bernacca, P.L., Emiliani, L., 1997, In: Perryman, M., Bernacca, P. (eds.) Proc. of Hipparcos Venice 97, xxvii-xxxv
- [630] Høg, E., Fabricius, C., Makarov, V.V., et al., 2000, A&A, 355, L27, ADS Link
- [631] Hogg, D.W., Lang, D., 2008, In: American Institute of Physics Conference Series, vol. 1082 of American Institute of Physics Conference Series, 331-338, doi:10.1063/1.3059072, ADS Link
- [632] Hogg, D.W., Lang, D., 2011, In: EAS Publications Series, vol. 45 of EAS Publications Series, 351-358 (arXiv:1008.0738), doi:10.1051/eas/1045059, ADS Link
- [633] Hohenkerk, C., Sinclair, A., 1985, NAO Technical Note, 63, URL <http://astro.ukho.gov.uk/data/tn/naotn63.pdf>
- [634] Holl, B., Lindegren, L., 2012, A&A, 543, A14, doi:10.1051/0004-6361/201218807, ADS Link
- [635] Holl, B., Hobbs, D., Lindegren, L., 2010, In: S. A. Klioner, P. K. Seidelmann, & M. H. Soffel (ed.) IAU Symposium, vol. 261 of IAU Symposium, 320-324, doi:10.1017/S1743921309990573, ADS Link

- [636] Holl, B., Lindegren, L., Hobbs, D., 2012, A&A, 543, A15, doi:10.1051/0004-6361/201218808, ADS Link
- [637] Holland, S.E., Groom, D.E., Palaio, N.P., Stover, R.J., Wei, M., 2003, IEEE transactions on electron devices, 50, 225
- [638] Holman, M.J., Payne, M.J., Blankley, P., Janssen, R., Kuindersma, S., 2018, AJ, 156, 135, doi:10.3847/1538-3881/aad69a, ADS Link
- [639] Hough, P.V.C., 1962, Method and means for recognizing complex patterns, URL <https://www.google.com/patents/US3069654>, US Patent 3,069,654
- [640] HPSS, HPSS – High Performance Storage Systems, URL <http://hpss-collaboration.org/>
- [641] HTCondor, HTCondor, URL <https://research.cs.wisc.edu/htcondor/index.html>
- [642] Huckle, H., 2007, *Continuum Normalisation*, Tech. rep., ESA, GAIA-C6-SP-MSSL-HEH-001-D
- [643] Huff, E., Mandelbaum, R., 2017, ArXiv e-prints (arXiv:1702.02600), ADS Link
- [644] **[PSTN-015]**, Huffer, M.E., 2019, *LSST Camera Control System and DAQ*, PSTN-015, URL <https://pstn-015.lsst.io/>, Vera C. Rubin Observatory Project Science Technical Note
- [645] IAU, 2001, Information Bulletin, 88, (errata in IAU Information Bulletin, 89)
- [646] Idreos, S., Groffen, F., Nes, N., et al., 2012, IEEE Data Eng. Bull., 35, 40, URL <http://sites.computer.org/debull/A12mar/monetdb.pdf>
- [647] 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
- [648] **[LTS-487]**, Ingraham, P., 2017, *Auxiliary Telescope Spectrograph Statement of Work (SOW)*, LTS-487, URL <https://ls.st/LTS-487>
- [649] **[LTS-488]**, Ingraham, P., 2017, *Auxiliary Telescope Spectrograph Specifications Document*, LTS-488, URL <https://ls.st/LTS-488>

- [650] **[LSE-379]**, Ingraham, P., 2018, *Auxiliary Telescope Concept of Operations*, LSE-379, URL <https://ls.st/LSE-379>
- [651] **[PSTN-027]**, Ingraham, P., 2020, *Performance of the LSST Calibration Systems*, PSTN-027, URL <https://pstn-027.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [652] **[PSTN-028]**, Ingraham, P., 2020, *Characterization of Atmospheric Properties with the Rubin Auxiliary Telescope*, PSTN-028, URL <https://pstn-028.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [653] **[SITCOMTN-013]**, Ingraham, P., 2021, *First-look Analysis and Feedback Functionality Breakout Group Charge*, SITCOMTN-013, URL <https://sitcomtn-013.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [654] **[SITCOMTN-015]**, Ingraham, P., 2021, *Diagnosing AuxTel Image Motion and WFE non-repeatability*, SITCOMTN-015, URL <https://sitcomtn-015.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [655] **[SITCOMTN-029]**, Ingraham, P., 2022, *LATISS Filter Change Procedure*, SITCOMTN-029, URL <https://sitcomtn-029.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [656] **[SITCOMTN-030]**, Ingraham, P., 2022, *First-look Analysis and Feedback Functionality Breakout Group Charge #2*, SITCOMTN-030, URL <https://sitcomtn-030.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [657] **[SITCOMTN-037]**, Ingraham, P., 2022, *First-Look Analysis and Feedback Functionality Breakout Group Report #2*, SITCOMTN-037, URL <https://sitcomtn-037.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [658] **[TSTN-027]**, Ingraham, P., 2022, *Seismic Event Recovery for the Auxiliary Telescope*, TSTN-027, URL <https://tstn-027.lsst.io/>,
Vera C. Rubin Observatory
- [659] **[TSTN-015]**, Ingraham, P., Ribeiro, T., 2020, *Using CWFS during operations and for collimation of the Auxiliary Telescope*, TSTN-015, URL <https://tstn-015.lsst.io/>,
Vera C. Rubin Observatory
- [660] **[TSTN-024]**, Ingraham, P., Ribeiro, T., 2021, *Concept of Control System Operations*, TSTN-024, URL <https://tstn-024.lsst.io/>,
Vera C. Rubin Observatory

- [661] **[SITCOMTN-024]**, Ingraham, P., Stalder, B., 2021, *Summit Power Reliability and Risk Evaluation Task Force Charge*, SITCOMTN-024, URL <https://sitcomtn-024.lsst.io/>, Vera C. Rubin Observatory Commissioning Technical Note
- [662] **[SITCOMTN-019]**, Ingraham, P., Quint, B., Dennihy, E., Shugart, A., Sotuela, I., 2022, *Observing Task Management Workflow Summary*, SITCOMTN-019, URL <https://sitcomtn-019.lsst.io/>, Vera C. Rubin Observatory Commissioning Technical Note
- [663] Intersystems, 2008, *Using Cache Globals*, URL <http://docs.intersystems.com/documentation/cache/20082/pdfs/GGBL.pdf>
- [664] 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
- [665] 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
- [666] Ivezic, Z., 2016, *The impact of photo-z on LSST science requirements*, URL <https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxwaXR0cGhvdG96d29ya3Nob3AyMDE2fGd40jMwZDZmNWEwYjhhMmY3Zjk>, Presented at the LSST Photo-z Workshop, Pittsburgh, April 5, 2016
- [667] **[PSTN-049]**, Ivezic, Z., 2020, *Essential Performance Metrics*, PSTN-049, URL <https://pstn-049.lsst.io/>, Vera C. Rubin Observatory Project Science Technical Note
- [668] **[DOCUMENT-27758]**, Ivezić, Ž., the LSST Project Science Team, 2018, *On the Choice of LSST Flux Units*, DOCUMENT-27758, URL <https://pstn-001.lsst.io/>, Vera C. Rubin Observatory
- [669] **[PSTN-001]**, Ivezić, Ž., LSST Project Science Team, 2018, *On the choice of LSST flux units*, PSTN-001, URL [PSTN-001.lsst.io](https://pstn-001.lsst.io/)
- [670] **[LPM-17]**, Ivezić, Ž., The LSST Science Collaboration, 2018, *LSST Science Requirements Document*, LPM-17, URL <https://lsst.org/lpm-17>
- [671] Ivezić, Ž., Smith, J.A., Miknaitis, G., et al., 2007, *AJ*, 134, 973 (arXiv:astro-ph/0703157), doi:10.1086/519976, ADS Link

- [672] Ivezić, Ž., Tyson, J., Juri, M., et al., 2007, In: Valsecchi, G.B., Vokrouhlický, D. (eds.) IAU Symposium, vol. 236 of IAU Symposium, 353–362, doi:10.1017/S1743921307003420, ADS Link
- [673] Ivezić, Ž., Axelrod, T., Becker, A.C., et al., 2008, In: Bailer-Jones, C.A.L. (ed.) American Institute of Physics Conference Series, vol. 1082 of American Institute of Physics Conference Series, 359–365 (arXiv:0810.5155), doi:10.1063/1.3059076, ADS Link
- [674] Ivezić, Ž., Connolly, A.J., VanderPlas, J.T., Gray, A., 2014, *Statistics, Data Mining, and Machine Learning in Astronomy*, Princeton University Press, ADS Link
- [675] 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
- [676] 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
- [677] 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
- [678] 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.
- [679] Jacobson, I., Booch, G., Rumbaugh, J., 1999, *The Unified Software Development Process*, Addison-Wesley Professional, 1st edn.
- [680] **[LSE-131]**, Jacoby, S., Emmons, B., Selvy, B., 2017, *Interface between Data Management and Education and Public Outreach*, LSE-131, URL <https://ls.st/LSE-131>
- [681] 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 Proc. SPIE, 1, doi:10.1117/12.857812, ADS Link
- [682] **[DMTN-022]**, Jammes, F., 2016, *Tracks to optimize Qserv containers deployment and orchestration*, DMTN-022, URL <https://dmtn-022.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [683] **[DMTN-032]**, Jammes, F., 2017, *Qserv Data Placement*, DMTN-032, URL <https://dmtn-032.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [684] **[DMTN-166]**, Jammes, F., 2020, *Ingesting DC2 data inside Qserv at IN2P3*, DMTN-166, URL <https://dmtn-166.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [685] Janesick, J.R., 2001, *Scientific charge-coupled devices*, SPIE Optical Engineering Press, ADS Link
- [686] 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
- [687] Jee, M.J., Tyson, J.A., 2011, PASP, 123, 596 (arXiv:1011.1913), doi:10.1086/660137, ADS Link
- [688] **[DMTN-001]**, Jenness, T., 2015, *Porting the stack to OS X El Capitan*, DMTN-001, URL <https://dmtn-001.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [689] Jenness, T., 2016, In: Lorente, N.P.F., Shortridge, K. (eds.) *ADASS XXV*, vol. TBD of ASP Conf. Ser., TBD, ASP, San Francisco (arXiv:1511.06790)
- [690] 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
- [691] 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
- [692] Jenness, T., 2016, In: *Python in Astronomy 2016*, 27, doi:10.5281/zenodo.48406, ADS Link
- [693] **[SQR-014]**, Jenness, T., 2016, *Porting the LSST DM Stack to Python 3*, SQR-014, URL <https://sqr-014.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [694] **[DMTN-000]**, Jenness, T., 2017, *The LSST Data Management Technical Note Series*, DMTN-000, URL <https://dmtn-000.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [695] **[PSTN-019]**, Jenness, T., 2019, *The LSST Pipelines Software*, PSTN-019, URL <https://pstn-019.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [696] **[PSTN-044]**, Jenness, T., 2019, *Geobelt satellites and LSST*, PSTN-044, URL <https://pstn-044.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [697] **[DMTN-133]**, Jenness, T., 2020, *OCS driven data processing*, DMTN-133, URL <https://dmtn-133.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [698] **[DMTN-176]**, Jenness, T., 2021, *A client/server Butler*, DMTN-176, URL <https://dmtn-176.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [699] **[DMTN-177]**, Jenness, T., 2021, *Limiting Registry Access During Workflow Execution*, DMTN-177, URL <https://dmtn-177.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [700] **[DMTN-203]**, Jenness, T., 2021, *Tracking Metrics in Butler*, DMTN-203, URL <https://dmtn-203.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [701] **[DMTN-204]**, Jenness, T., 2021, *Data Annotations in Butler*, DMTN-204, URL <https://dmtn-204.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [702] **[DMTN-205]**, Jenness, T., 2021, *Tracking Provenance in Butler*, DMTN-205, URL <https://dmtn-205.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [703] **[DMTN-206]**, Jenness, T., 2021, *Simplifying Pipeline Execution APIs*, DMTN-206, URL <https://dmtn-206.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [704] **[DMTN-229]**, Jenness, T., 2022, *The Vera C. Rubin Observatory Data Butler and pipeline execution system*, DMTN-229, URL <https://dmtn-229.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [705] Jenness, T., LSST Data Management Team, 2016, In: American Astronomical Society Meeting Abstracts, vol. 227 of American Astronomical Society Meeting Abstracts, #348.15, doi:10.5281/zenodo.44634, ADS Link
- [706] **[LDM-512]**, Jenness, T., O'Mullane, W., 2017, *Data Management Risk Assessment Process*, LDM-512, URL <https://ls.st/LDM-512>
- [707] **[Report-142]**, Jenness, T., Swinbank, J., Krughoff, S., Dubois-Felsmann, G., Ciardi, D., 2015, *Hot-Wiring the Transient Universe IV*, Report-142, URL <https://ls.st/Report-142>, Report on the Hot-Wiring the Transient Universe IV conference held in Santa Barbara in May 2015.
- [708] Jenness, T., Bosch, J., Owen, R., et al., 2016, In: Software and Cyberinfrastructure for Astronomy IV, vol. 9913 of Proc. SPIE, 99130G, doi:10.1117/12.2231313, ADS Link
- [709] **[LDM-592]**, Jenness, T., Bosch, J., Gower, M., et al., 2018, *Data Access Use Cases*, LDM-592, URL <https://ldm-592.lsst.io/>, Vera C. Rubin Observatory Data Management Controlled Document
- [710] Jenness, T., Bosch, J.F., Schellart, P., et al., 2018, arXiv e-prints, arXiv:1812.08085 (arXiv:1812.08085), ADS Link
- [711] Jenness, T., Economou, F., Findeisen, K., et al., 2018, In: Software and Cyberinfrastructure for Astronomy V, vol. 10707 of Proc. SPIE, 1070709, doi:10.1117/12.2312157, ADS Link
- [712] Jessen, N.C., Nørgaard-Nielsen, H.U., Stevenson, T., et al., 2004, In: J. Antebi and D. Lemke (ed.) *Astronomical Structures and Mechanisms Technology*, vol. 5495 of Proc. SPIE, 23–30, doi:10.1117/12.550023, ADS Link
- [713] **[LDM-643]**, Johnson, M., Gruendl, R., 2019, *Proposed DM OPS Rehearsals*, LDM-643, URL <https://ls.st/LDM-643>
- [714] 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
- [715] **[LSE-180]**, Jones, L., 2013, *Level 2 Photometric Calibration for the LSST Survey*, LSE-180, URL <https://ls.st/LSE-180>

- [716] **[SMTN-001]**, Jones, L., 2016, *Simulating Moving Object Detections*, SMTN-001, URL <https://smtn-001.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [717] **[SMTN-003]**, Jones, L., 2017, *Trailing Losses for Moving Objects*, SMTN-003, URL <https://smtn-003.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [718] **[SMTN-009]**, Jones, L., 2017, *Minimoons and LSST*, SMTN-009, URL <https://smtn-009.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [719] **[SMTN-012]**, Jones, L., 2020, *Solar System Small Body Metrics*, SMTN-012, URL <https://smtn-012.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [720] **[SMTN-013]**, Jones, L., 2020, *Microlensing and TDE Metrics*, SMTN-013, URL <https://smtn-013.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [721] **[SMTN-014]**, Jones, L., 2020, *DESC Static Science (WFD) Metrics*, SMTN-014, URL <https://smtn-014.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [722] Jones, L., Brown, M., Ivezić, Z., et al., 2015, In: AAS/Division for Planetary Sciences Meeting Abstracts, vol. 47 of AAS/Division for Planetary Sciences Meeting Abstracts, #312.22, ADS Link
- [723] **[PSTN-051]**, Jones, R.L., 2021, *Survey Strategy and Cadence Choices for the Vera C. Rubin Observatory Legacy Survey of Space and Time (LSST)*, PSTN-051, URL <https://psn-051.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [724] Jones, R.L., Padmanabhan, N., Ivezić, Z., et al., 2010, In: Observatory Operations: Strategies, Processes, and Systems III, vol. 7737 of Proc. SPIE, 77371F, doi:10.1117/12.857743, ADS Link
- [725] 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, 0, doi:10.1117/12.2056835, ADS Link

- [726] 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
- [727] Jordan, P.R., Jordan, D., Jerram, P.A., Pralong, J., Swindells, I., 2014, In: Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, vol. 9154 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 91540M, doi:10.1117/12.2069423, ADS Link
- [728] 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
- [729] 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
- [730] 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
- [731] 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
- [732] Juric, M., 2013, LSST: Introduction and Data Management Requirements, URL <http://wiki.ivoa.net/internal/IV0A/InterOpMay2013/juric.pdf>, Presented at the IVOA Interoperability Meeting, Heidelberg, Germany
- [733] 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
- [734] 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
- [735] 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>, Radio Astronomy in the LSST Era - Charlottesville, VA - May 6-8, 2013

- [736] 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.
- [737] 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
- [738] 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
- [739] 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
- [740] 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
- [741] 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
- [742] **[PSTN-025]**, Jurić, M., 2019, *LSST Moving Object Processing*, PSTN-025, URL <https://pstn-025.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [743] **[LDM-582]**, Juric, M., Gruendl, R., 2017, *Lossy Compression Working Group Charge*, LDM-582, URL <https://ls.st/LDM-582>
- [744] 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.

- [745] Juric, M., Tyson, T., 2015, *Highlights of Astronomy*, 16, 675, doi:10.1017/S174392131401285X, ADS Link
- [746] 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
- [747] **[LDM-134]**, Jurić, M., Allsman, R., Kantor, J., 2013, *Data Management Applications UML Use Case Model*, LDM-134, URL <https://ls.st/LDM-134>
- [748] **[DMTN-035]**, Juric, M., Becker, A., Shaw, R., Krughoff, K.S., Kantor, J., 2013, *Winter 2013 LSST DM Data Challenge Release Notes*, DMTN-035, URL <https://dmtn-035.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [749] 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, ADS Link
- [750] **[LDM-133]**, Jurić, M., Lim, K.T., Kantor, J., 2013, *Data Management UML Domain Model*, LDM-133, URL <https://ls.st/LDM-133>
- [751] Juric, M., Jones, L., Axelrod, T., Ivezić, Z., 2015, *IAU General Assembly*, 22, 56348, ADS Link
- [752] 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 *ASP Conf. Ser.*, 279 (arXiv:1512.07914), ADS Link
- [753] 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 *ASP Conf. Ser.*, 279 (arXiv:1512.07914), ADS Link
- [754] **[LSE-319]**, Jurić, M., Ciardi, D., Dubois-Felsmann, G., Guy, L., 2019, *LSST Science Platform Vision Document*, LSE-319, URL <https://lse-319.lsst.io/>, Vera C. Rubin Observatory
- [755] **[DMTN-087]**, Juric, M., Eggli, S., Moeyens, J., Jones, L., 2020, *Proposed Modifications to Solar System Processing and Data Products*, DMTN-087, URL <https://dmtn-087.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note

- [756] **[LSE-163]**, Jurić, M., Axelrod, T., Becker, A., et al., 2021, *Data Products Definition Document*, LSE-163, URL <https://lse-163.lsst.io/>,
Vera C. Rubin Observatory
- [757] Juric, M., et al., 2016, In: Lorente, N.P.F., Shortridge, K. (eds.) ADASS XXV, vol. TBD of ASP Conf. Ser., TBD, ASP, San Francisco (arXiv:1512.07914)
- [758] 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, 0, doi:10.1117/12.857920, ADS Link
- [759] 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
- [760] Kane, T.R., Likins, P.W., Levinson, D.A., 1983, *Spacecraft dynamics*, McGraw Hill Book Company, 1 edn.
- [761] **[DMTN-190]**, Kannawadi, A., 2022, *Consistent galaxy colors with Gaussian-Aperture and PSF photometry*, DMTN-190, URL <https://dmtn-190.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [762] **[DMTN-215]**, Kannawadi, A., 2022, *Tracking noise properties in Rubin Science Pipelines processing*, DMTN-215, URL <https://dmtn-215.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [763] Kantor, J., 2008, Lsst data management: Making petascale data accessible, *New Astronomy: The Data Challenge*, Rio de Janeiro, Brazil
- [764] Kantor, J., 2008, Lsst network requirements, *Brazilian Symposium of Computer Networks and Distributed Systems*
- [765] 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
- [766] Kantor, J., 2008, Lsst processing: Challenges and solutions, *PUCÓN SYMPOSIUM 2008, Fifth AccessNova Forum: Ubiquitous Networks in Advanced Applications*

- [767] Kantor, J., 2008, Lsst overview,
PUCÓN SYMPOSIUM 2008, Fifth AccessNova Forum: Ubiquitous Networks in Advanced Applications
- [768] Kantor, J., 2010, In: Radziwill, N.M., Bridger, A. (eds.) Software and Cyberinfrastructure for Astronomy, vol. 7740 of Proc. SPIE, 1, doi:10.1117/12.857253, ADS Link
- [769] **[Document-26217]**, Kantor, J., 2010, *Data Challenge 3b Performance Test 1.1*, Document-26217, URL <https://ls.st/Document-26217>
- [770] 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
- [771] **[document-14789]**, Kantor, J., 2014, *LSST Long-Haul Networks (LHN) End-to-end Test Plan*, document-14789, URL <https://ls.st/document-14789>
- [772] 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
- [773] **[LDM-324]**, Kantor, J., 2016, *Data Management Information Security Plan*, LDM-324, URL <https://ls.st/LDM-324>
- [774] **[LDM-142]**, Kantor, J., 2017, *Network Sizing Model*, LDM-142, URL <https://ls.st/LDM-142>
- [775] **[LSE-309]**, Kantor, J., 2017, *Summit to Base Information Technology and Communication (ITC) Design*, LSE-309, URL <https://ls.st/LSE-309>
- [776] **[Document-28547]**, Kantor, J., 2018, *LSST Network Bandwidth Tests between Chile and the United States*, Document-28547, URL <https://ls.st/Document-28547>
- [777] **[DMTR-151]**, Kantor, J., 2019, *LWV-P47 Summit - Base Network Integration Test Plan and Report*, DMTR-151, URL <https://dmtr-151.lsst.io/>, Vera C. Rubin Observatory Data Management Test Report
- [778] **[DMTR-241]**, Kantor, J., 2020, *LWV-P73: Network Pre-Verification for Operation Rehearsal #2 Test Plan and Report*, DMTR-241, URL <https://dmtr-241.lsst.io/>, Vera C. Rubin Observatory Data Management Test Report
- [779] **[LDM-732]**, Kantor, J., 2020, *Vera C. Rubin Observatory Network Verification Document*, LDM-732, URL <https://ldm-732.lsst.io/>, Vera C. Rubin Observatory Data Management Controlled Document

- [780] 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
- [781] Kantor, J., Axelrod, T., 2010, In: Radziwill, N.M., Bridger, A. (eds.) Software and Cyber-infrastructure for Astronomy, vol. 7740 of Proc. SPIE, 1, doi:10.1117/12.857280, ADS Link
- [782] 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>
- [783] **[Document-7025]**, Kantor, J., Krabbendam, V., 2011, *DM Risk Register*, Document-7025, URL <https://ls.st/Document-7025>
- [784] **[LPM-81]**, Kantor, J., Krabbendam, V., 2015, *Cost Estimating Plan*, LPM-81, URL <https://ls.st/LPM-81>
- [785] 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
- [786] **[Document-9044]**, Kantor, J., Axelrod, T., Allsman, R., Freemon, M., Lim, K.T., 2010, *Data Challenge 3b Overview*, Document-9044, URL <https://ls.st/Document-9044>
- [787] **[LDM-138]**, Kantor, J., Axelrod, T., Lim, K.T., 2013, *Data Management Compute Sizing Model*, LDM-138, URL <https://ls.st/LDM-138>
- [788] **[LDM-240]**, Kantor, J., Jurić, M., Lim, K.T., 2016, *Data Management Releases*, LDM-240, URL <https://ls.st/LDM-240>
- [789] Kantor, J., Long, K., Becla, J., et al., 2016, In: Modeling, Systems Engineering, and Project Management for Astronomy VI, vol. 9911 of Proc. SPIE, 99110N, doi:10.1117/12.2233380, ADS Link
- [790] 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

- [791] Kantor, J., Long, K., Becla, J., et al., 2016, In: Modeling, Systems Engineering, and Project Management for Astronomy VI, vol. 9911 of Proc. SPIE, 99110N, doi:10.1117/12.2233380, ADS Link
- [792] Kantor, J.P., 2006, In: Lewis, H., Bridger, A. (eds.) Advanced Software and Control for Astronomy, vol. 6274 of Proc. SPIE, 62740P, doi:10.1117/12.671685, ADS Link
- [793] Kantor, J.P., 2012, In: Angeli, G.Z., Dierickx, P. (eds.) Modeling, Systems Engineering, and Project Management for Astronomy V, vol. 8449 of Proc. SPIE, 0, doi:10.1117/12.924887, ADS Link
- [794] Katz, D., 2006, Gaia - RVS: DPAC and CU6, URL http://wwwhip.obspm.fr/gaia/cu6/workshop_2/CU6_w2_Katz_intro.pdf,
CU6 Workshop2
- [795] Kerekes, G., Budav'ari, 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
- [796] **[Publication-144]**, Kessler, R., et al., 2011, *Science White Paper for LSST Deep-Drilling Field Observations: Supernova Light Curves*, Publication-144, URL <https://ls.st/Publication-144>
- [797] **[DMTN-002]**, Kind, M.C., 2016, *SuperTask and Activator Notes*, DMTN-002, URL <https://dmtn-002.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [798] **[DMTN-033]**, Kind, M.C., 2016, *Cluster and container management with Kubernetes*, DMTN-033, URL <https://dmtn-033.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [799] Kirsch, N., 2012, WD Red 3TB NAS Hard Drive Review, URL <http://www.legitreviews.com/article/2092/3/>
- [800] 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
- [801] **[DMTN-100]**, Klaveren, B.V., 2018, *Namespacing Database Objects*, DMTN-100, URL <https://dmtn-100.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [802] **[DMTN-094]**, Klaveren, B.V., 2019, *LSP Authentication Design*, DMTN-094, URL <https://dmtn-094.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [803] **[DMTN-116]**, Klaveren, B.V., 2019, *LSP Authentication Implementation*, DMTN-116, URL <https://dmtn-116.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [804] **[DMTN-138]**, Klaveren, B.V., 2019, *Building and Distributing LSST Software with conda and conda-forge*, DMTN-138, URL <https://dmtn-138.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [805] Klioner, S.A., 2001, ArXiv Astrophysics e-prints (arXiv:astro-ph/0107457), ADS Link
- [806] Klioner, S.A., 2003, AJ, 125, 1580, ADS Link
- [807] Klioner, S.A., 2004, Phys. Rev. D, 69, 124001 (arXiv:astro-ph/0311540), doi:10.1103/PhysRevD.69.124001, ADS Link
- [808] 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–+, ADS Link
- [809] Klioner, S.A., 2008, A&A, 478, 951, doi:10.1051/0004-6361:20077786, ADS Link
- [810] Klioner, S.A., 2008, In: H. Dittus, C. Lammerzahl, & S. G. Turyshev (ed.) 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
- [811] Klioner, S.A., Peip, M., 2003, A&A, 410, 1063 (arXiv:astro-ph/0305204), doi:10.1051/0004-6361:20031283, ADS Link
- [812] Klioner, S.A., Soffel, M.H., 2000, Phys. Rev. D, 62, 024019 (arXiv:gr-qc/9906123), ADS Link
- [813] 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–+, ADS Link
- [814] Klioner, S.A., Zschocke, S., Soffel, M.H., Butkevich, A.G., 2010, ArXiv e-prints (arXiv:1002.5016), ADS Link
- [815] Knight, S., 2005, Computing in Science Engineering, 7, 79, doi:10.1109/MCSE.2005.11

- [816] Kobayashi, Y., Gouda, G., Tsujimoto, T., et al., 2006, Exploiting Large Surveys for Galactic Astronomy, 26th meeting of the IAU, Joint Discussion 13, 22-23 August 2006, Prague, Czech Republic, JD13, #32, 13, ADS Link
- [817] Kohley, R., Garé, P., Vétel, C., Marchais, D., Chassat, F., 2012, In: Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, vol. 8442 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, doi:10.1117/12.926144, ADS Link
- [818] Kopeikin, S., Vlasov, I., 2004, Phys. Rep., 400, 209 (arXiv:gr-qc/0403068), doi:10.1016/j.physrep.2004.08.004, ADS Link
- [819] Koppelman, H., Helmi, A., Veljanoski, J., 2018, ApJ, 860, L11, doi:10.3847/2041-8213/aac882, ADS Link
- [820] Korn, G.A., Korn, T.M., 1961, *Mathematical handbook for scientists and engineers*, McGraw Hill Book Company, 1 edn.
- [821] **[DMTN-179]**, Kovács, G., 2021, *The ZOGY image differencing matching kernel and PSF solutions and their practical implementation issues*, DMTN-179, URL <https://dmtn-179.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [822] Kovalevsky, J., 1998, ARA&A, 36, 99, doi:10.1146/annurev.astro.36.1.99, ADS Link
- [823] Kovalevsky, J., Lindegren, L., Froeschle, M., et al., 1995, A&A, 304, 34, ADS Link
- [824] **[DMTN-040]**, Kowalik, M., 2018, *A closer look at Pegasus WMS*, DMTN-040, URL <https://dmtn-040.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [825] **[DMTN-154]**, Kowalik, M., 2020, *DBB Buffer Managers*, DMTN-154, URL <https://dmtn-154.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [826] **[DMTN-042]**, Kowalik, M., Chiang, H.F., Gower, M., Pietrowicz, S., Kooper, R., 2017, *Batch Production Services: Creating Workflows*, DMTN-042, URL <https://dmtn-042.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [827] **[DMTN-025]**, Kowalik, M., Chiang, H.F., Daues, G., Kooper, R., 2018, *A survey of workflow management systems*, DMTN-025, URL <https://dmtn-025.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [828] **[LDM-633]**, Kowalik, M., Gower, M., Kooper, R., 2019, *Offline Batch Production Services Use Cases*, LDM-633, URL <https://ldm-633.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [829] **[LDM-636]**, Kowalik, M., Gower, M., Kooper, R., 2019, *Batch Production Service Requirements*, LDM-636, URL <https://ldm-636.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [830] **[LPM-72]**, Krabbendam, V., 2015, *Scope Options*, LPM-72, URL <https://ls.st/LPM-72>
- [831] **[LPM-20]**, Krabbendam, V., Selvy, B., 2015, *Risk & Opportunity Management Plan*, LPM-20, URL <https://ls.st/LPM-20>
- [832] **[LPM-125]**, Krabbendam, V., Goodenow, I., 2016, *Project Management Office Information Security Plan*, LPM-125, URL <https://ls.st/LPM-125>
- [833] **[EISD-EPNS-00003]**, Krall, C., 2004, *IMPLEMENTATION OF THE ESA NETWORK SECURITY POLICY*,
EISD-EPNS-00003
- [834] Krisciunas, K., Schaefer, B.E., 1991, PASP, 103, 1033, doi:10.1086/132921, ADS Link
- [835] Kruchten, P., 2003, *The Rational Unified Process: An Introduction*, Addison-Wesley Professional, 3rd edn.
- [836] Krughoff, K.S., 2014, Image differencing for lsst, URL <http://dx.doi.org/10.5281/zenodo.45300>,
ZTF-LSST Joint Meeting November 12th 2014
- [837] 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, doi:<http://dx.doi.org/10.5281/zenodo.45300>
- [838] **[LSE-349]**, Krughoff, K.S., 2019, *Defining the Transformation Between Camera Engineering Coordinates and Camera Data Visualization Coordinates*, LSE-349, URL <https://lse-349.lsst.io/>,
Vera C. Rubin Observatory

- [839] **[PSTN-023]**, Krughoff, K.S., 2019, *LSST Data Management Quality Assurance and Reliability Engineering*, PSTN-023, URL <https://pstn-023.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [840] **[SQR-021]**, Krughoff, S., 2018, *An Example JupyterLab Development Workflow*, SQR-021, URL <https://sqr-021.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [841] **[SQR-025]**, Krughoff, S., 2019, *Welcome to the Notebook Aspect of the LSST Science Platform*, SQR-025, URL <https://sqr-025.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [842] **[DMTN-142]**, Krughoff, S., 2020, *From Notebook to Library: Dealing with analysis code*, DMTN-142, URL <https://dmtn-142.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [843] **[SQR-047]**, Krughoff, S., 2020, *Technical considerations for nublado design*, SQR-047, URL <https://sqr-047.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [844] **[DMTR-291]**, Krughoff, S., 2021, *DM-503-EFDa: EFD on Summit for M1/M3 Test Plan and Report*, DMTR-291, URL <https://dmtr-291.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [845] **[DMTR-331]**, Krughoff, S., 2021, *DM-503-EFDb: Replication of Summit EFD to USDF Test Plan and Report*, DMTR-331, URL <https://dmtr-331.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [846] **[DMTN-082]**, Krughoff, S., Economou, F., 2018, *On accessing EFD data in the Science Platform*, DMTN-082, URL <https://dmtn-082.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [847] **[DMTN-074]**, Krughoff, S., Swinbank, J., 2018, *DM QA Status & Plans*, DMTN-074, URL <https://dmtn-074.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [848] **[DMTR-41]**, Krughoff, S., Wood-Vasey, J., 2017, *Characterization Metric Report: Science Pipelines Version 14.0*, DMTR-41, URL <https://ls.st/DMTR-41>
- [849] Kubica, J., Axelrod, T., Barnard, K., et al., 2005, In: American Astronomical Society Meeting Abstracts, vol. 37 of Bulletin of the American Astronomical Society, 1207, ADS Link

- [850] 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
- [851] 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
- [852] **[SITCOMTN-018]**, Lage, C., 2021, *Working with Rubin EFD timestamps.*, SITCOMTN-018, URL <https://sitcomtn-018.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [853] **[SITCOMTN-026]**, Lage, C., 2021, *AuxTel PowerUp sequence*, SITCOMTN-026, URL <https://sitcomtn-026.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [854] **[SITCOMTN-028]**, Lage, C., 2021, *Temperature compensation of the AuxTel focus model*, SITCOMTN-028, URL <https://sitcomtn-028.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [855] 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
- [856] Lallo, M. and Petro, L., 1999, *Bidirectional reflectance distribution function for the NGST mirrors*, Tech. rep., Space Telescope Science Institute
- [857] **[LSE-78]**, Lambert, R., Kantor, J., Huffer, M., et al., 2017, *LSST Observatory Network Design*, LSE-78, URL <https://ls.st/LSE-78>
- [858] 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
- [859] Lammers, U., ,
unpublished results
- [860] Lammers, U., Lindegren, L., O'Mullane, W., Hobbs, D., 2009, In: D. A. Bohlender, D. Durand, & P. Dowler (ed.) *Astronomical Data Analysis Software and Systems XVIII*, vol. 411 of *Astronomical Society of the Pacific Conference Series*, 55–+, ADS Link
- [861] Larman, C., Basili, V.R., 2003, *Computer*, 36, 47, doi:10.1109/MC.2003.1204375

- [862] Lasker, B., Lattanzi, M., McLean, B., et al., 2008, *The Astronomical Journal*, 136, doi:10.1088/0004-6256/136/2/735, ADS Link
- [863] Lattanzi, M., Drimmel, R., 2003, private communication
- [864] Lattanzi, M.G., Spagna, A., Sozzetti, A., Casertano, S., 2000, *MNRAS*, 317, 211 (arXiv:astro-ph/0005024), ADS Link
- [865] Lattanzi, M.G., Casertano, S., Jancart, S., et al., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *ESA SP-576: The Three-Dimensional Universe with Gaia*, 251–+, ADS Link
- [866] Lazio, J.W., Kimball, A., Barger, A.J., et al., 2014, *PASP*, 126, 196 (arXiv:1401.0716), doi:10.1086/675262, ADS Link
- [867] 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
- [868] van Leeuwen, F., 1997, *The Hipparcos Mission*, Springer, *Space Science Reviews*, Vol.81 edn.
- [869] van Leeuwen, F., 2007, *Hipparcos, the New Reduction of the Raw Data*, Springer, *Astrophysics and Space Science Library*. Vol. 350 edn.
- [870] Leistedt, B., Hogg, D.W., 2017, *ApJ*, 838, 5 (arXiv:1612.00847), doi:10.3847/1538-4357/aa6332, ADS Link
- [871] Lejeune, T., Cuisinier, F., Buser, R., 1998, *A&AS*, 130, 65 (arXiv:astro-ph/9710350), ADS Link
- [872] Lenhardt, H., 2003, *GIS implementation in GDAAS2: Detailed Geometrical Calibration*, Tech. rep., ARI, GAIA-ARI-HL-001
- [873] **[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

- [874] Levine, D.A., Mannings, V., Cutri, R., et al., 2007, In: American Astronomical Society Meeting Abstracts, vol. 39 of Bulletin of the American Astronomical Society, #137.24, ADS Link
- [875] **[DMTN-201]**, Li, Y.T., 2021, *USDF Object Storage Architecture and Planning*, DMTN-201, URL <https://dmtn-201.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [876] **[RTN-025]**, Li, Y.T., 2021, *USDF Object Storage Architecture and Planning*, RTN-025, URL <https://rtn-025.lsst.io/>, Vera C. Rubin Observatory Technical Note
- [877] Lim, K.T., 2007, Preparing for scores of petabytes, IEEE Mass Storage Symposium, San Diego, CA, September 26, 2007
- [878] Lim, K.T., 2008, Lsst and scidb, Stanford HPC Conference, Stanford, CA, USA, August 28, 2008
- [879] Lim, K.T., 2008, Cyberinfrastructure lessons from lsst data management, iPlant Workshop (remote presentation), December 16, 2008
- [880] Lim, K.T., 2008, The lsst data management system, Talk at Keck Observatory, December 2, 2008
- [881] Lim, K.T., 2008, Astronomy, petabytes, and mysql, URL <http://conferences.oreilly.com/mysql2008/public/schedule/detail/849>, MySQL Conference, Santa Clara, CA, April 16, 2008
- [882] Lim, K.T., 2011, Lsst applications and middleware, Talk at Fermilab, May 12, 2011
- [883] Lim, K.T., 2012, The lsst database: What to expect, AAS Splinter Meeting, Austin TX, January 8, 2012
- [884] 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
- [885] **[Document-15097]**, Lim, K.T., 2013, *LSST Data Challenge Report: Summer 2013*, Document-15097, URL <https://ls.st/Document-15097>

- [886] 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
- [887] 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
- [888] 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
- [889] **[DMTN-050]**, Lim, K.T., 2017, *EFD Handling within DM*, DMTN-050, URL <https://dmtn-050.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [890] **[DMTN-052]**, Lim, K.T., 2017, *Initial Installation of a DAQ Test Stand at NCSA*, DMTN-052, URL <https://dmtn-052.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [891] **[DMTN-067]**, Lim, K.T., 2017, *Catalog Data Model*, DMTN-067, URL <https://dmtn-067.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [892] **[DMTN-103]**, Lim, K.T., 2018, *LSST Science Platform Deployments*, DMTN-103, URL <https://dmtn-103.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [893] **[DMTN-111]**, Lim, K.T., 2019, *DM Usage in Observatory Operations*, DMTN-111, URL <https://dmtn-111.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [894] **[DMTN-125]**, Lim, K.T., 2019, *Google Cloud Engagement Results*, DMTN-125, URL <https://dmtn-125.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [895] **[DMTN-132]**, Lim, K.T., 2019, *Independent LSST Identity Management*, DMTN-132, URL <https://dmtn-132.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [896] **[LSE-400]**, Lim, K.T., 2019, *Header Service Interface*, LSE-400, URL <https://lse-400.lsst.io>
- [897] **[DMTN-143]**, Lim, K.T., 2020, *Image Capture Simplification*, DMTN-143, URL <https://dmtn-143.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [898] **[DMTN-150]**, Lim, K.T., 2020, *LSST + Google Cloud Proof of Concept 2020*, DMTN-150, URL <https://dmtn-150.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [899] **[DMTN-092]**, Lim, K.T., 2021, *Alert Production Pipeline Interfaces*, DMTN-092, URL <https://dmtn-092.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [900] **[DMTN-181]**, Lim, K.T., 2021, *Campaign Management*, DMTN-181, URL <https://dmtn-181.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [901] **[DMTN-188]**, Lim, K.T., 2021, *IVOA Universal Worker Service: Roles and Implementation*, DMTN-188, URL <https://dmtn-188.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [902] **[DMTN-189]**, Lim, K.T., 2021, *Data Facility Specifications*, DMTN-189, URL <https://dmtn-189.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [903] **[DMTN-198]**, Lim, K.T., 2022, *Data Backbone Implementation*, DMTN-198, URL <https://dmtn-198.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [904] **[DMTN-213]**, Lim, K.T., 2022, *Multi-Site Data Release Processing Using PanDA and Rucio*, DMTN-213, URL <https://dmtn-213.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [905] **[DMTN-218]**, Lim, K.T., 2022, *The LSST Science Pipelines Build System*, DMTN-218, URL <https://dmtn-218.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [906] **[DMTN-219]**, Lim, K.T., 2022, *Proposal and Prototype for Prompt Processing*, DMTN-219, URL <https://dmtn-219.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [907] **[DMTN-227]**, Lim, K.T., 2022, *The Consolidated Database of Image Metadata*, DMTN-227, URL <https://dmtn-227.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [908] **[RTN-036]**, Lim, K.T., 2022, *Software Distribution at Data Facilities*, RTN-036, URL <https://rtn-036.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [909] **[Document-32503]**, Lim, K.T., Committee, R., 2019, *Identity Management Review Report*, Document-32503, URL <https://ls.st/Document-32503>
- [910] **[LDM-146]**, Lim, K.T., Allsman, R., Kantor, J., 2013, *Data Management Middleware UML Use Case and Activity Model*, LDM-146, URL <https://ls.st/LDM-146>
- [911] **[LDM-140]**, Lim, K.T., Smith, C., Axelrod, T., Dubois-Felsmann, G., Freemon, M., 2013, *Data Management Compute Sizing Explanation*, LDM-140, URL <https://ls.st/LDM-140>
- [912] **[LDM-152]**, Lim, K.T., Dubois-Felsmann, G., Johnson, M., Jurić, M., Petravick, D., 2017, *Data Management Middleware Design*, LDM-152, URL <https://ls.st/LDM-152>
- [913] **[LDM-148]**, Lim, K.T., Bosch, J., Dubois-Felsmann, G., et al., 2018, *Data Management System Design*, LDM-148, URL <https://ls.st/LDM-148>
- [914] **[DMTN-114]**, Lim, K.T., Guy, L., Chiang, H.F., 2019, *LSST + Amazon Web Services Proof of Concept*, DMTN-114, URL <https://dmtn-114.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [915] 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
- [916] Lindegren, L., 1978, In: Prochazka, F.V., Tucker, R.H. (eds.) IAU Colloq. 48: Modern Astrometry, 197–217, ADS Link
- [917] Lindegren, L., 1983, *Pseudosolution and pseudocovariances of least-squares problems with known null space*, Tech. rep., Lund Observatory, NDAC/LO/018, Hipparcos NDAC
- [918] Lindegren, L., 1995, A&A, 304, 61, ADS Link
- [919] 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

- [920] Lindegren, L., 2009, Proceedings of the International Astronomical Union, 5, 296, doi:10.1017/S1743921309990548
- [921] Lindegren, L., 2010, ISSI Scientific Reports Series, 9, 279, ADS Link
- [922] 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
- [923] Lindegren, L., Bastian, U., 2011, In: EAS Publications Series, vol. 45 of EAS Publications Series, 109–114, doi:10.1051/eas/1045018, ADS Link
- [924] 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
- [925] 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
- [926] 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
- [927] 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
- [928] Lindegren, L., Lammers, U., Hobbs, D., et al., 2012, A&A, 538, A78 (arXiv:1112.4139), doi:10.1051/0004-6361/201117905, ADS Link
- [929] Lindegren, L., Lammers, U., Hobbs, D., et al., 2012, Astronomy and Astrophysics, 538, A78, doi:10.1051/0004-6361/201117905
- [930] 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

- [931] LINPACK, URL <http://www.top500.org/lists/linpack.php>,
Linpack standard numerical benchmark
- [932] Lock, D., 2000, *Project Phasing and Planning*, Gower, 7 edn.
- [933] **[LPM-98]**, Long, K.E., 2016, *LSST Project Controls System Description*, LPM-98, URL
<https://ls.st/LPM-98>
- [934] **[PSTN-037]**, Lopez, M., 2020, *Installation and Performance of the LSST Camera Refrigeration System*, PSTN-037, URL <https://pstn-037.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [935] López, P.P., Luri, X., Serraller, I., 2003, *Java Code Conventions*, Tech. rep., GMV/UB,
GMV-GDAAS2-SCG-004
- [936] **[LSE-209]**, Lotz, P., 2016, *Software Component to OCS Interface*, LSE-209, URL <https://ls.st/LSE-209>
- [937] **[LSE-70]**, Lotz, P., 2016, *System Communication Protocol Interface*, LSE-70, URL <https://ls.st/LSE-70>
- [938] Lotz, P.J., Dubois-Felsmann, G.P., Lim, K.T., et al., 2016, In: *Software and Cyberinfrastructure for Astronomy IV*, vol. 9913 of Proc. SPIE, 991309, doi:10.1117/12.2231796,
ADS Link
- [939] **[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*, Agreement-51, URL <https://ls.st/Agreement-51>
- [940] LSST Data Management, LSST DM Developer Guide, URL <https://developer.lsst.io/>
- [941] **[Report-241]**, LSST Project Science Team, 2015, *Camera Mixed Focal Plane Option*, Report-241, URL <https://ls.st/Report-241>
- [942] LSST Science Collaboration, 2009, ArXiv e-prints (arXiv:0912.0201), ADS Link
- [943] LSST Science Collaboration, Marshall, P., Anguita, T., et al., 2017, ArXiv e-prints (arXiv:1708.04058), ADS Link
- [944] **[Document-11624]**, LSST Science Council, 2011, *Optimization of LSST Deployment Parameters*, Document-11624, URL <https://ls.st/Document-11624>

- [945] **[Document-16168]**, LSST Systems Engineering, 2014, *LSST Key System Parameters Summary*, Document-16168, URL <https://ls.st/Document-16168>
- [946] **[SITCOMTN-006]**, Lupton, R., 2021, *Integration Milestones*, SITCOMTN-006, URL <https://sitcomtn-006.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [947] **[SITCOMTN-032]**, Lupton, R., 2022, *Visits, snaps, seqNums, and exposureIDs*, SITCOMTN-032, URL <https://sitcomtn-032.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [948] Lupton, R., Blanton, M.R., Fekete, G., et al., 2004, *PASP*, 116, 133 (arXiv:astro-ph/0312483), doi:10.1086/382245, ADS Link
- [949] **[PSTN-026]**, Lupton, R.H., 2019, *LSST Calibration Strategy and Pipelines*, PSTN-026, URL <https://pstn-026.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [950] Luri, X., Palmer, M., Arenou, F., et al., 2014, *A&A*, 566, A119 (arXiv:1404.5861), doi:10.1051/0004-6361/201423636, ADS Link
- [951] **[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*, Document-10963, URL <https://ls.st/Document-10963>
- [952] Makarov, V.V., 1998, *A&A*, 340, 309, ADS Link
- [953] Mangum, J.G., Wallace, P., 2015, *PASP*, 127, 74 (arXiv:1411.1617), doi:10.1086/679582, ADS Link
- [954] **[RTN-033]**, Margheim, S., Verma, A., Marshall, P., 2022, *The In-Kind Helpdesk System*, RTN-033, URL <https://rtn-033.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [955] MariaDB, MariaDB – Enterprise Open Source Database & Data Warehouse, URL <https://mariadb.com/>
- [956] **[RDO-011]**, Marshall, P., 2020, *Release Scenarios for LSST Data*, RDO-011, URL <https://docushare.lsstcorp.org/docushare/dsweb/Get/RDO-11>
- [957] **[RTN-034]**, Marshall, P., 2022, *Planning Tools for Rubin Operations*, RTN-034, URL <https://rtn-034.lsst.io/>,
Vera C. Rubin Observatory Technical Note

- [958] **[RTN-035]**, Marshall, P., 2022, *The Rubin Operations Center at SLAC*, RTN-035, URL <https://rtn-035.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [959] **[PSTN-030]**, Mason, B., 2020, *LSST Education and Public Outreach: Infrastructure Overview*, PSTN-030, URL <https://pstn-030.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [960] Matheson, T., Stubens, C., Wolf, N., et al., 2021, *AJ*, 161, 107 (arXiv:2011.12385),
doi:10.3847/1538-3881/abd703, ADS Link
- [961] **[ITTN-022]**, Maulen, G., 2020, *Summit Building Fiber/Copper Deployment*, ITTN-022,
URL <https://ittn-022.lsst.io/>,
Vera C. Rubin Observatory
- [962] **[ITTN-024]**, Maulen, G., 2020, *Summit Outside of Building Fiber/Copper Deployment*,
ITTN-024, URL <https://ittn-024.lsst.io/>,
Vera C. Rubin Observatory
- [963] **[ITTN-025]**, Maulen, G., 2020, *La Serena Building Fiber/Copper Deployment*, ITTN-025,
URL <https://ittn-025.lsst.io/>,
Vera C. Rubin Observatory
- [964] **[ITTN-026]**, Maulen, G., 2020, *La Serena Datacenter Fiber/Copper Deployment*, ITTN-
026, URL <https://ittn-026.lsst.io/>,
Vera C. Rubin Observatory
- [965] **[ITTN-034]**, Maulen, G., 2020, *Summit base link*, ITTN-034, URL <https://ittn-034.lsst.io/>,
Vera C. Rubin Observatory
- [966] **[ITTN-046]**, Maulen, G., 2021, *Cameras Fibers*, ITTN-046, URL <https://ittn-046.lsst.io/>,
Vera C. Rubin Observatory
- [967] **[ITTN-047]**, Maulen, G., Constanzo, J., Stockebrand, H., 2021, *Third Floor Network Planning*, ITTN-047, URL <https://ittn-047.lsst.io/>,
Vera C. Rubin Observatory
- [968] McDowell, J., 2004, *Toward an International Virtual Observatory: Proceedings of the ESO/ESA/NASA/NSF Conference Held at Garching, Germany, 10-14 June 2002*, ESO ASTROPHYSICS SYMPOSIA. ISBN 3-540-21001-6

- [969] **[LPM-51]**, McKercher, R., 2013, *Document Management Plan*, LPM-51, URL <https://ls.st/LPM-51>
- [970] **[LPM-43]**, McKercher, R., 2016, *WBS Structure*, LPM-43, URL <https://ls.st/LPM-43>
- [971] **[LPM-44]**, McKercher, R., 2016, *WBS Dictionary*, LPM-44, URL <https://ls.st/LPM-44>
- [972] 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
- [973] Melnik, S., Gubarev, A., Long, J.J., et al., 2010, *Proc. VLDB Endow.*, 3, 330, doi:10.14778/1920841.1920886
- [974] **[DMTN-058]**, Menanteau, F., 2017, *Design Concepts for the DM Header Service*, DMTN-058, URL <https://dmtn-058.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [975] 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
- [976] **[DMTN-064]**, Meyers, J., 2018, *Hyper Suprime-Cam donut analysis*, DMTN-064, URL <https://dmtn-064.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [977] Meyers, J.E., Burchat, P.R., 2015, *ApJ*, 807, 182 (arXiv:1409.6273), doi:10.1088/0004-637X/807/2/182, ADS Link
- [978] 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), ADS Link
- [979] Michalik, D., Lindegren, L., Hobbs, D., Lammers, U., Yamada, Y., 2013, In: de Grijs, R. (ed.) *IAU Symposium*, vol. 289 of *IAU Symposium*, 414–417, doi:10.1017/S1743921312021849, ADS Link
- [980] Michalik, D., Lindegren, L., Hobbs, D., Lammers, U., 2014, *A&A*, 571, A85 (arXiv:1407.4025), doi:10.1051/0004-6361/201424606, ADS Link
- [981] Michalik, D., Lindegren, L., Hobbs, D., 2015, *A&A*, 574, A115 (arXiv:1412.8770), doi:10.1051/0004-6361/201425310, ADS Link

- [982] 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
- [983] Microsoft, Microsoft – SQL Server 2016, URL <https://www.microsoft.com/en-us/sql-server/sql-server-2016>
- [984] Microsystems, S., 1999, *Code Conventions for the Java Programming Language*, Tech. rep., Sun, <http://java.sun.com/docs/codeconv>
- [985] Microsystems, S., 1999, *Java Look and Feel Design Guidelines*, Tech. rep., Sun, <http://java.sun.com/products/jlfdg/index.htm>
- [986] Microsystems, S., 2000, *How to write Doc Comments for JavaDoc*, Tech. rep., Sun, <http://java.sun.com/products/jdk/javadoc/writingdoccomments/index.html>
- [987] Mignard, F., 2000, *A&A*, 354, 522, ADS Link
- [988] Mignard, F., 2001, *A practical scanning law for GAIA simulations*, Tech. rep., CERGA, GAIA-FM-010
- [989] Mignard, F., 2002, In: Bienayme, O., Turon, C. (eds.) *EAS Publications Series*, vol. 2 of *Engineering and Science*, 107–121, ADS Link
- [990] Mignard, F., 2002, *Considerations on the orbit of Gaia for simulations*, Tech. rep., Observatoire de la Côte D’Azur/CERGA, GAIA-FM-011
- [991] Mignard, F., 2004, Observatoire de la Côte D’Azur/CERGA, private communication
- [992] Mignard, F., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *ESA SP-576: The Three-Dimensional Universe with Gaia*, 5–+, ADS Link
- [993] Mignard, F., Klioner, S., 2012, *A&A*, 547, A59 (arXiv:1207.0025), doi:10.1051/0004-6361/201219927, ADS Link
- [994] Milani, A., Gronchi, D., G. and Farnocchia, Ivezić, Ž., et al., 2008, *Icarus*, 195, 474, doi:10.1016/j.icarus.2007.11.033, ADS Link
- [995] Miller, W.W., III, Sontag, C., Rose, J.F., 2003, In: Payne, H.E., Jędrzejewski, 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

- [996] **[LTS-210]**, Mills, D., 2015, *Engineering and Facility Database Design Document*, LTS-210, URL <https://ls.st/LTS-210>
- [997] Mohammadi, M., Bazhirov, T., 2017, ArXiv e-prints (arXiv:1702.02968), ADS Link
- [998] Möller, A., Peloton, J., Ishida, E.E.O., et al., 2021, MNRAS, 501, 3272 (arXiv:2009.10185), doi:10.1093/mnras/staa3602, ADS Link
- [999] 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
- [1000] Monash, C., 2009, eBay's two enormous data warehouses, URL <http://www.dbms2.com/2009/04/30/ebays-two-enormous-data-warehouses/>
- [1001] 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/>
- [1002] 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/>
- [1003] **[TSTN-006]**, Mondrik, N., Ingraham, P., Brownsburger, S., 2019, *LSST Atmospheric Transmission and Slitless Spectrograph (LATISS) Instrument Handbook*, TSTN-006, URL <https://tstn-006.lsst.io/>,
Vera C. Rubin Observatory
- [1004] Moniez, M., 2003, A&A, 412, 105 (arXiv:astro-ph/0302460), doi:10.1051/0004-6361:20031478, ADS Link
- [1005] **[DMTN-194]**, Moolekamp, F., 2021, *The current state of scarlet and looking toward the future*, DMTN-194, URL <https://dmtn-194.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1006] **[DMTN-026]**, Moolekamp, F., Schellart, P., 2017, *Pybind11 wrapping step-by-step*, DMTN-026, URL <https://dmtn-026.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1007] Moore, G.E., 1965, Electronics, 38, 114
- [1008] Mora, A., Vosteen, A., 2012, In: Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, vol. 8442 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series (arXiv:1207.2087), doi:10.1117/12.926313, ADS Link

- [1009] Mora, A., Biermann, M., Brown, A.G.A., et al., 2014, In: Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, vol. 9143 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 0 (arXiv:1407.3729), doi:10.1117/12.2054602, ADS Link
- [1010] Moreau, L., Clifford, B., Freire, J., et al., 2011, *Future Generation Computer Systems*, 27, 743, URL <https://eprints.soton.ac.uk/271449/>
- [1011] Moreno, F., Molina, A., Ortiz, J.L., 1997, *A&A*, 327, 1253, ADS Link
- [1012] **[DMTN-031]**, Morrison, C.B., 2018, *Pessimistic Pattern Matching for LSST*, DMTN-031, URL <https://dmtn-031.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1013] MPI, MPI Documents, URL <http://mpi-forum.org/docs/>
- [1014] MPI4PY, MPI for Python, URL <http://mpi4py.readthedocs.io/en/stable/>
- [1015] **[LDM-552]**, Mueller, F., 2017, *Qserv Software Test Specification*, LDM-552, URL <https://ls.st/LDM-552>
- [1016] **[DMTR-71]**, Mueller, F., 2019, *LVV-P46 (2018 Qserv Large Scale Testing) Test Plan and Report*, DMTR-71, URL <https://dmtr-71.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [1017] Muinonen, K., Belskaya, I.N., Cellino, A., et al., 2010, *Icarus*, 209, 542, doi:10.1016/j.icarus.2010.04.003, ADS Link
- [1018] Munari, U., 2000, In: *Molecules in Space and in the Laboratory*, Proceedings of a workshop held 2-5 June 1999 in Carloforte, Cagliari., vol. 67, 179–, I. Porceddu, and S. Aiello. Bologna, Italy: Italian Physical Society, Conference Proceedings
- [1019] Munari, U., Tomasella, L., 1999, *A&AS*, 137, 521, ADS Link
- [1020] **[LDM-156]**, Myers, J., Jones, L., Axelrod, T., 2013, *Moving Object Pipeline System Design*, LDM-156, URL <https://ls.st/LDM-156>
- [1021] 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
- [1022] Naghib, E., Yoachim, P., Vanderbei, R.J., Connolly, A.J., Jones, R.L., 2018, arXiv e-prints, arXiv:1810.04815 (arXiv:1810.04815), ADS Link

- [1023] Narayan, G., Snodgrass, R., Keceioglu, J., et al., 2015, IAU General Assembly, 22, 58269, ADS Link
- [1024] 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
- [1025] NASA/Science Office of Standards and Technology, 1995, *Definition of the Flexible Image Transport System (FITS)*, Tech. Rep. NOST 100-1.1, NASA/NOST
- [1026] 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
- [1027] 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
- [1028] 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
- [1029] 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
- [1030] 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
- [1031] **[LTS-206]**, Neill, D., Sebag, J., Gressler, W., 2017, *Hexapods and Rotator Specifications Document*, LTS-206, URL <https://ls.st/LTS-206>
- [1032] **[RTN-016]**, Neilsen, E., 2022, *Background and concepts for monitoring survey progress and scheduler performance*, RTN-016, URL <https://rtn-016.lsst.io/>, Vera C. Rubin Observatory Technical Note

- [1033] **[RTN-022]**, Neilsen, E., 2022, *Seeing values for LSST strategy simulations*, RTN-022, URL <https://rtn-022.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1034] **[RTN-037]**, Neilsen, E., 2022, *Architecture for Scheduler and Observing Progress Monitoring Software*, RTN-037, URL <https://rtn-037.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1035] **[RTN-012]**, Neilsen, E., Jones, L., Yoachim, P., 2020, *Approximating Pre-calculated Sky Brightness with Zernike Coefficients*, RTN-012, URL <https://rtn-012.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1036] **[RTN-014]**, Neilsen, E., Jones, L., Yoachim, P., 2021, *Lunar Complications in the Scheduling of Deep Drilling Fields*, RTN-014, URL <https://rtn-014.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1037] **[DMTN-149]**, Nelson, S., 2020, *Alert Stream Simulator for Community Broker Development*, DMTN-149, URL <https://dmtn-149.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1038] **[DMTN-183]**, Nelson, S., 2021, *Alert Database Design*, DMTN-183, URL <https://dmtn-183.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1039] **[DMTN-210]**, Nelson, S., 2022, *Implementation of the LSST Alert Distribution System*, DMTN-210, URL <https://dmtn-210.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1040] **[DMTN-214]**, Nelson, S., 2022, *Alert Distribution System Operator's Manual*, DMTN-214, URL <https://dmtn-214.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1041] **[LSE-479]**, Network Engineering Team (NET), 2020, *Network Technical Document*, LSE-479, URL <https://ls.st/LSE-479>
- [1042] 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), ADS Link
- [1043] **[LDM-502]**, Nidever, D., Economou, F., 2016, *The Measurement and Verification of DM Key Performance Metrics*, LDM-502, URL <https://ls.st/LDM-502>

- [1044] 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
- [1045] 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
- [1046] Nieto-Santisteban, M.A., Szalay, A.S., Thakar, A.R., et al., 2005, ArXiv Computer Science e-prints (arXiv:cs/0502018), ADS Link
- [1047] 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
- [1048] **[LCA-227]**, Nordby, M., Kurita, N., O'Neill, F., Marsh, D., 2014, *LSST Camera Quality Implementation Plan*, LCA-227, URL <https://ls.st/LCA-227>
- [1049] Nordin, J., Brinnet, V., van Santen, J., et al., 2019, A&A, 631, A147 (arXiv:1904.05922), doi:10.1051/0004-6361/201935634, ADS Link
- [1050] Nordstrom, B., Latham, D.W., Morse, J.A., et al., 1994, A&A, 287, 338, ADS Link
- [1051] Obe, R.O., Hsu, L.S., 2015, *PostGIS in Action*, Manning Publications Co., Greenwich, CT, USA, 2nd edn.
- [1052] O'Connor, P., 2015, Journal of Instrumentation, 10, C05010 (arXiv:1501.04137), doi:10.1088/1748-0221/10/05/C05010, ADS Link
- [1053] **[DMTN-128]**, O'Mullane, W., 2019, *LSST Data Management All Hands*, DMTN-128, URL <https://dmtn-128.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1054] **[DMTN-130]**, O'Mullane, W., 2019, *Technical items to honor a tech great*, DMTN-130, URL <https://dmtn-130.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1055] **[DMTN-131]**, O'Mullane, W., 2019, *When clouds might be good for LSST*, DMTN-131, URL <https://dmtn-131.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [1056] **[DMTN-134]**, O'Mullane, W., 2019, *Interacting with DOE LABs*, DMTN-134, URL <https://dmtn-134.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1057] **[LDM-702]**, O'Mullane, W., 2019, *Image display working group charge*, LDM-702, URL <https://ls.st/LDM-702>
- [1058] **[PSTN-002]**, O'Mullane, W., 2019, *Understanding of Telescope and Site Software situation*, PSTN-002, URL <https://pstn-002.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1059] **[DMTN-144]**, O'Mullane, W., 2020, *Distribution of Rubin Observatory data outside the data rights community*, DMTN-144, URL <https://dmtn-144.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1060] **[DMTN-145]**, O'Mullane, W., 2020, *Bringing Rubin Observatory software together*, DMTN-145, URL <https://dmtn-145.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1061] **[PSTN-050]**, O'Mullane, W., 2020, *Notes on use of TeX and texmf for Construction papers*, PSTN-050, URL <https://pstn-050.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1062] **[DMTN-108]**, O'Mullane, W., 2021, *Security of Rubin Observatory data*, DMTN-108, URL <https://dmtn-108.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1063] **[PSTN-017]**, O'Mullane, W., 2021, *Overview of LSST Data Management*, PSTN-017, URL <https://pstn-017.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1064] **[RTN-001]**, O'Mullane, W., 2021, *Data Preview 0: Definition and planning.*, RTN-001, URL <https://rtn-001.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1065] **[DMTN-223]**, O'Mullane, W., 2022, *User batch - possibilities and plans.*, DMTN-223, URL <https://dmtn-223.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1066] **[DMTN-232]**, O'Mullane, W., 2022, *Celebratory Milestones*, DMTN-232, URL <https://dmtn-232.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [1067] **[RTN-030]**, O'Mullane, W., 2022, *Rubin Data Production Security Plan*, RTN-030, URL <https://rtn-030.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1068] **[RTN-031]**, O'Mullane, W., 2022, *Second data facilities workshop findings*, RTN-031, URL <https://rtn-031.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1069] **[LDM-563]**, O'Mullane, W., Jenness, T., 2017, *Butler Working Group Charge*, LDM-563,
URL <https://ls.st/LDM-563>
- [1070] O'Mullane, W., Lindegren, L., 1999, *Baltic Astronomy*, 8, 57, ADS Link
- [1071] O'Mullane, W., Lindegren, L., 1999, *An Object-Oriented Framework for GAIA Data Processing*, Tech. rep., ESA
- [1072] 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
- [1073] **[PSTN-003]**, O'Mullane, W., Mueller, F., 2019, *Discussion of Object vs. Source table queries and data distribution*, PSTN-003, URL <https://pstn-003.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1074] **[LDM-572]**, O'Mullane, W., Petravick, D., 2017, *Chilean Data Access Center*, LDM-572,
URL <https://ls.st/LDM-572>
- [1075] **[ITTN-006]**, O'Mullane, W., Silva, C., 2020, *Management and Planning of Rubin IT*, ITTN-006, URL <https://ittn-006.lsst.io/>,
Vera C. Rubin Observatory
- [1076] **[DMTN-153]**, O'Mullane, W., Slater, C., 2020, *Schema Management in DM*, DMTN-153,
URL <https://dmtn-153.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1077] **[DMTN-072]**, O'Mullane, W., Swinbank, J., 2018, *Cloud technical assesment*, DMTN-072,
URL <https://dmtn-072.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1078] **[LPM-221]**, O'Mullane, W., Willman, B., 2017, *Charge for LSST Data Access Policy Working Group*, LPM-221, URL <https://ls.st/LPM-221>

- [1079] 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](#)
- [1080] 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](#)
- [1081] 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](#)
- [1082] 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](#)
- [1083] O'Mullane, W., Li, N., Nieto-Santisteban, M., et al., 2005, *Batch is back: CasJobs, serving multi-TB data on the Web*, Tech. rep., Microsoft, Microsoft Technical Report MSR TR 2005 19 (arXiv:cs/0502072), [ADS Link](#)
- [1084] O'Mullane, W., Lammers, U., Bailer-Jones, C., et al., 2006, *ArXiv Astrophysics e-prints* (arXiv:astro-ph/0611885), [ADS Link](#)
- [1085] O'Mullane, W., Hoar, J., Lammers, U., 2007, *ArXiv e-prints*, 712 (arXiv:0712.0249), [ADS Link](#)
- [1086] O'Mullane, W., Hernández, J., Hoar, J., Lammers, U., 2009, In: D. A. Bohlender, D. Durand, & P. Dowler (ed.) *Astronomical Data Analysis Software and Systems XVIII*, vol. 411 of *Astronomical Society of the Pacific Conference Series*, 470, [ADS Link](#)
- [1087] O'Mullane, W., Lammers, U., Hernandez, J., 2011, In: I. N. Evans, A. Accomazzi, D. J. Mink, & A. H. Rots (ed.) *Astronomical Data Analysis Software and Systems XX*, vol. 442 of *Astronomical Society of the Pacific Conference Series*, 351, [ADS Link](#)
- [1088] 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](#)
- [1089] 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](#)
- [1090] O'Mullane, W., Luri, X., Parsons, P., et al., 2011, *ArXiv e-prints* (arXiv:1108.0355), [ADS Link](#)

- [1091] **[LDM-553]**, O'Mullane, W., Swinbank, J.D., Jurić, M., DMLT, 2017, *Evolution of the Data Management Plan and Organization*, LDM-553, URL <https://ls.st/LDM-553>
- [1092] **[LDM-564]**, O'Mullane, W., Economou, F., Jenness, T., Loftus, A., 2018, *Data Management Software Releases for Verification/Integration*, LDM-564, URL <https://ls.st/LDM-564>
- [1093] **[LDM-294]**, O'Mullane, W., Swinbank, J., Jurić, M., DMLT, 2018, *Data Management Organization and Management*, LDM-294, URL <https://ls.st/LDM-294>
- [1094] **[DMTN-078]**, O'Mullane, W., Swinbank, J., Lim, K., et al., 2018, *Potential proofs of concept for cloud deployment*, DMTN-078, URL <https://dmtn-078.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1095] O'Mullane, W., Gaffney, N., Economou, F., et al., 2019, arXiv e-prints, arXiv:1907.13060 (arXiv:1907.13060), ADS Link
- [1096] **[DMTN-119]**, O'Mullane, W., Gruendl, R., Blum, R., 2019, *Report on Operations Rehearsal #1*, DMTN-119, URL <https://dmtn-119.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1097] **[DMTN-096]**, O'Mullane, W., Swinbank, J., Guy, L., Bauer, A., 2020, *Implementation and impacts of DM scope options.*, DMTN-096, URL <https://dmtn-096.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1098] **[LPM-251]**, O'Mullane, W., Willman, B., Graham, M., Guy, L., Blum, R., 2020, *Proposed Policy for Independent Data Access Centers*, LPM-251, URL <https://lpm-251.lsst.io/>,
Vera C. Rubin Observatory
- [1099] **[DMTN-135]**, O'Mullane, W., Dubois, R., Butler, M., Lim, K.T., 2021, *DM sizing model and cost plan for construction and operations.*, DMTN-135, URL <https://dmtn-135.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1100] **[RTN-013]**, O'Mullane, W., Dubois, R., Chiang, H.F., 2021, *Near term workflow for pre-operations with PanDA*, RTN-013, URL <https://rtn-013.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1101] **[DMTN-209]**, O'Mullane, W., Economou, F., Huang, F., et al., 2021, *Rubin Science Platform on Google: the story so far.*, DMTN-209, URL <https://dmtn-209.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [1102] **[LSO-011]**, O'Mullane, W., Marshall, P., Guy, L., 2021, *OBSOLETE see RDO-11 . Release Scenarios for LSST Data*, LSO-011, URL <https://lso-011.lsst.io/>,
Vera C. Rubin Observatory
- [1103] **[LDM-503]**, O'Mullane, W., Swinbank, J., Juric, M., et al., 2021, *Data Management Test Plan*, LDM-503, URL <https://ldm-503.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [1104] **[RTN-003]**, O'Mullane, W., Willman, B., Graham, M., et al., 2021, *Guidelines for Rubin Independent Data Access Centers*, RTN-003, URL <https://rtn-003.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1105] **[RTN-005]**, O'Mullane, W., Bauer, A., Blum, R., Marshall, P., Petry, C., 2022, *Work Management Systems for Rubin Operations*, RTN-005, URL <https://rtn-005.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1106] 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
- [1107] OpenMP, OpenMP, URL <http://www.openmp.org/>
- [1108] Oracle, Oracle – Database 12c, URL <https://www.oracle.com/database/index.html>
- [1109] 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
- [1110] 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
- [1111] Ortiz I., D.P., Lusted J., 2008, *Astronomical Data Query Language*, Tech. rep., IVOA, REC-ADQL-2.0
- [1112] **[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/llink/livelink/fetch/-415780/2741092/SAT_GEN_PL_3.0_06_MP_30May2011.pdf?nodeid=3120171&vernum=-2
- [1113] **[ITTN-001]**, Oteiza, N.S., Hoblitt, J., 2019, *Redux Notes - Puppeton July, 2019*, ITTN-001, URL <https://ittn-001.lsst.io/>,
Vera C. Rubin Observatory

- [1114] Otto, S., Politzer, H.D., Preskill, J., Wise, M.B., 1986, *ApJ*, 304, 62, doi:10.1086/164144, ADS Link
- [1115] Owen, R., 2016, In: *Python in Astronomy 2016*, 28, doi:10.5281/zenodo.48410, ADS Link
- [1116] **[TSTN-033]**, Owen, R., 2022, *Exploring Kafka for Telescope Control*, TSTN-033, URL <https://tstn-033.lsst.io/>, Vera C. Rubin Observatory
- [1117] **[DMTN-041]**, Owen, R., Krughoff, S., 2014, *Design of the LSST Camera Geometry system*, DMTN-041, URL <https://dmtn-041.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1118] Owens, J.C., 1967, *Appl. Opt.*, 6, 51, doi:10.1364/AO.6.000051, ADS Link
- [1119] **[DMTN-168]**, Padolski, S., Ye, S., 2022, *Running Science Pipelines using PanDA*, DMTN-168, URL <https://dmtn-168.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1120] Pankratius, V., Li, J., Gowanlock, M., et al., 2016, *IEEE Intelligent Systems*, 31, 3, doi:10.1109/MIS.2016.60
- [1121] **[DMTN-005]**, Parejko, J., 2016, *Current LSST stack WCS usage*, DMTN-005, URL <https://dmtn-005.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1122] **[DMTN-027]**, Parejko, J., 2016, *Renaming an LSST git Repository*, DMTN-027, URL <https://dmtn-027.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1123] **[DMTN-010]**, Parejko, J., Owen, R., 2016, *WCS and Distortion Requirements and Existing Options*, DMTN-010, URL <https://dmtn-010.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1124] **[SQR-017]**, Parejko, J., Sick, J., 2017, *Validation Metrics Framework*, SQR-017, URL <https://sqr-017.lsst.io/>, Vera C. Rubin Observatory SQuaRE Technical Note
- [1125] Parejko, J., Jenness, T., Owen, R., 2016, In: *Python in Astronomy 2016*, 17, doi:10.5281/zenodo.48414, ADS Link

- [1126] **[DMTN-093]**, Patterson, M., Bellm, E., Swinbank, J., Nelson, S., 2020, *Design of the LSST Alert Distribution System*, DMTN-093, URL <https://dmtn-093.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1127] **[DMTN-028]**, Patterson, M.T., 2018, *Benchmarking a distribution system for LSST alerts*, DMTN-028, URL <https://dmtn-028.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1128] **[DMTN-081]**, Patterson, M.T., 2018, *Deploying an alert stream mini-broker prototype*, DMTN-081, URL <https://dmtn-081.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1129] 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
- [1130] Pegasus, Pegasus WMS, URL <https://pegasus.isi.edu/>
- [1131] Pérez-Jordán, w., Castro-Almazán, J.A., Muñoz-Tuñón, C., 2018, MNRAS, 477, 5477 (arXiv:1804.05200), doi:10.1093/mnras/sty943, ADS Link
- [1132] Perryman, A., 2010, *The Making of History's Greatest Star Map*, Astronomers' universe, Springer, URL <http://books.google.es/books?id=P-5pZ8GNuPIC>
- [1133] Perryman, M., 2009, *Astronomical Applications of Astrometry: Ten Years of Exploitation of the Hipparcos Satellite Data*, Cambridge University Press
- [1134] Perryman, M., de Bruijne, J., Lammers, U., 2008, Experimental Astronomy, 22, 143, doi:10.1007/s10686-008-9116-7, ADS Link
- [1135] Perryman, M.A.C., ESA (eds.), 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
- [1136] 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
- [1137] 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

- [1138] **[SQR-007]**, Peterson, J.M., 2016, *SQuaRE's Logging, monitoring and metrics system*, SQR-007, URL <https://sqr-007.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1139] 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
- [1140] **[LPM-122]**, Petravick, D., 2015, *LSST Information Classification Policy*, LPM-122, URL <https://ls.st/LPM-122>
- [1141] **[DMTN-051]**, Petravick, D., 2017, *LDF File Systems Baseline Overview*, DMTN-051, URL <https://dmtn-051.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1142] **[LPM-123]**, Petravick, D., 2017, *LSST General Acceptable Use Policy*, LPM-123, URL <https://ls.st/LPM-123>
- [1143] **[LSE-239]**, Petravick, D., Hoblitt, J., Lim, K.T., et al., 2016, *Base Facility Data Center Design Requirements*, LSE-239, URL <https://ls.st/LSE-239>
- [1144] **[LDM-230]**, Petravick, D., Butler, M., Gelman, M., 2018, *Concept of Operations for the LSST Data Facility Services*, LDM-230, URL <https://ls.st/LDM-230>
- [1145] **[LDM-129]**, Petravick, D., Johnson, M., Butler, M., 2018, *LSST Data Facility Logical Information Technology and Communications Design*, LDM-129, URL <https://ls.st/LDM-129>
- [1146] **[LPM-121]**, Petravick, D.L., Withers, A., 2016, *LSST Master Information Security Policy*, LPM-121, URL <https://ls.st/LPM-121>
- [1147] Pickles, A.J., 1998, *PASP*, 110, 863, doi:10.1086/316197, ADS Link
- [1148] 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
- [1149] **[DMTN-003]**, Pietrowicz, S., 2015, *Description of v1.0 of the Alert Production Simulator*, DMTN-003, URL <https://dmtn-003.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1150] **[DMTN-062]**, Pietrowicz, S., 2017, *OpenShift investigation*, DMTN-062, URL <https://dmtn-062.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [1151] **[DMTN-071]**, Pietrowicz, S., 2018, *Kubernetes Installation*, DMTN-071, URL <https://dmtn-071.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1152] **[DMTN-084]**, Pietrowicz, S., 2018, *Kubernetes Notes*, DMTN-084, URL <https://dmtn-084.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1153] **[DMTN-095]**, Pietrowicz, S., 2018, *Kubernetes Guidelines*, DMTN-095, URL <https://dmtn-095.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1154] Pike, R., Dorward, S., Griesemer, R., Quinlan, S., 2005, *Scientific Programming*, 13, 277,
doi:10.1155/2005/962135
- [1155] **[Document-5373]**, Pinto, P., Kantor, J., Strauss, M., Sweeney, D., 2008, *Data Access White Paper*, Document-5373, URL <https://ls.st/Document-5373>
- [1156] Plante, R., Greene, G., Hanisch, R., et al., 2004, In: F. Ochsenbein, M. G. Allen, & D. Egret (ed.) *Astronomical Data Analysis Software and Systems (ADASS) XIII*, vol. 314 of *Astronomical Society of the Pacific Conference Series*, 585, ADS Link
- [1157] **[Document-9541]**, Plante, R., Allsman, R., Axelrod, T., et al., 2010, *Results from Data Challenge 1*, Document-9541, URL <https://ls.st/Document-9541>
- [1158] **[DMTN-079]**, Plutchak, J., 2018, *Investigations for Consolidating System Management and Deployment*, DMTN-079, URL <https://dmtn-079.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1159] Pourbaix, D., 2002, *A&A*, 385, 686 (arXiv:astro-ph/0201132), doi:10.1051/0004-6361:20020149, ADS Link
- [1160] Press, W.H., Teukolsky, S.A., Vetterling, W.T., Flannery, B.P., 2002, *Numerical Recipes in C*, Cambridge University Press, 2 edn.
- [1161] 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
- [1162] Project, A.L.S., Apache log4cxx, URL https://logging.apache.org/log4cxx/latest_stable/
- [1163] **[LPM-162]**, Project Science Team, 2015, *Project Publication Policy*, LPM-162, URL <https://ls.st/LPM-162>
-

- [1164] 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
- [1165] Prusti, T., 2014, In: EAS Publications Series, vol. 67 of EAS Publications Series, 15–21, doi:10.1051/eas/1567003, ADS Link
- [1166] Quobyte, Quobyte – Data Center File System, URL <https://www.quobyte.com/>
- [1167] RabbitMQ, RabbitMQ – Messaging that just works, URL <https://www.rabbitmq.com/>
- [1168] 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
- [1169] **[Document-8590]**, Rasmussen, A., 2015, *Sensor Modeling for the LSST Camera Focal Plane: Current Status of SLAC Originated Code*, Document-8590, URL <https://ls.st/Document-8590>
- [1170] **[DMTN-039]**, Rawls, M., 2019, *A Prototype AP Pipeline*, DMTN-039, URL <https://dmtn-039.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1171] Re Fiorentin, P., Bailer-Jones, C.A.L., Lee, Y.S., et al., 2007, Astronomy and Astrophysics, 467, 1373 (arXiv:astro-ph/0703309), doi:10.1051/0004-6361:20077334, ADS Link
- [1172] 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
- [1173] **[LSE-390]**, Reil, K., Claver, C., Riot, V., Krabbendam, V., 2020, *Commissioning Execution Plan*, LSE-390, URL <https://ls.st/LSE-390>
- [1174] **[PSTN-036]**, Reil, K.A., 2020, *LSST Camera Instrumental Signature Characterization, Calibration and Removal*, PSTN-036, URL <https://pstn-036.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1175] **[ITTN-012]**, Reinking, H., 2020, *Graylog k8s deployment and configuration*, ITTN-012, URL <https://ittn-012.lsst.io/>,
Vera C. Rubin Observatory
- [1176] **[ITTN-027]**, Reinking, H., 2020, *Monitoring over Icinga2*, ITTN-027, URL <https://ittn-027.lsst.io/>,
Vera C. Rubin Observatory
-

- [1177] **[ITTN-036]**, Reinking, H., 2021, *Virtualization Cluster Topology and Design*, ITTN-036, URL <https://ittn-036.lsst.io/>,
Vera C. Rubin Observatory
- [1178] **[ITTN-048]**, Reinking, H., 2021, *CentOS System Disk Encryption*, ITTN-048, URL <https://ittn-048.lsst.io/>,
Vera C. Rubin Observatory
- [1179] **[ITTN-052]**, Reinking, H., 2021, *Base Data Center Power off/Power on Procedure*, ITTN-052, URL <https://ittn-052.lsst.io/>,
Vera C. Rubin Observatory
- [1180] **[ITTN-054]**, Reinking, H., 2021, *TIG Infrastructure*, ITTN-054, URL <https://ittn-054.lsst.io/>,
Vera C. Rubin Observatory
- [1181] **[DMTN-007]**, Reiss, D., 2016, *Dipole characterization for image differencing*, DMTN-007, URL <https://dmtn-007.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1182] **[DMTN-061]**, Reiss, D.J., 2017, *State of image subtraction in the LSST stack*, DMTN-061, URL <https://dmtn-061.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1183] **[DMTN-021]**, Reiss, D.J., Lupton, R.H., 2016, *Implementation of Image Difference Decorrelation*, DMTN-021, URL <https://dmtn-021.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1184] **[SMTN-007]**, Reuter, M., 2016, *So, You Want to Write a Scheduler for SOCS*, SMTN-007, URL <https://smtn-007.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [1185] **[SITCOMTN-001]**, Reuter, M., 2019, *Operations Manual for Dome Seeing Monitor*, SITCOMTN-001, URL <https://sitcomtn-001.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [1186] **[TSTN-025]**, Reuter, M., 2020, *Stress Testing New Releases*, TSTN-025, URL <https://tstn-025.lsst.io/>,
Vera C. Rubin Observatory
-

- [1187] **[PSTN-040]**, Reuter, M.A., 2019, *Tracking of LSST System Performance with Continuous Integration Methods*, PSTN-040, URL <https://pstn-040.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1188] Reuter, M.A., Cook, K.H., Delgado, F., Petry, C.E., Ridgway, S.T., 2016, In: *Modeling, Systems Engineering, and Project Management for Astronomy VI*, vol. 9911 of Proc. SPIE, 991125, doi:10.1117/12.2232680, ADS Link
- [1189] **[Report-561]**, Review Committee, 2018, *Telescope & Site (T&S) Software Review Report, Report-561*, URL <https://ls.st/Report-561>
- [1190] **[TSTN-002]**, Ribeiro, T., 2019, *Software Deployment Strategy*, TSTN-002, URL <https://tstn-002.lsst.io/>,
Vera C. Rubin Observatory
- [1191] **[TSTN-012]**, Ribeiro, T., 2020, *Auxiliary Telescope M1 Pressure Look Up Table.*, TSTN-012, URL <https://tstn-012.lsst.io/>,
Vera C. Rubin Observatory
- [1192] **[TSTN-013]**, Ribeiro, T., 2020, *Auxiliary Telescope Hexapod Look Up Table.*, TSTN-013, URL <https://tstn-013.lsst.io/>,
Vera C. Rubin Observatory
- [1193] **[TSTN-016]**, Ribeiro, T., 2020, *Auxiliary Telescope: Determining sensitivity matrix for hexapod correction using CWFS data*, TSTN-016, URL <https://tstn-016.lsst.io/>,
Vera C. Rubin Observatory
- [1194] **[TSTN-014]**, Ribeiro, T., 2021, *Auxiliary Telescope Building and fitting pointing model.*, TSTN-014, URL <https://tstn-014.lsst.io/>,
Vera C. Rubin Observatory
- [1195] **[TSTN-017]**, Ribeiro, T., 2021, *Handling CSC configuration and ancillary data.*, TSTN-017, URL <https://tstn-017.lsst.io/>,
Vera C. Rubin Observatory
- [1196] **[TSTN-028]**, Ribeiro, T., 2021, *The past, present and future of the Vera Rubin Observatory Observatory Control System Middleware*, TSTN-028, URL <https://tstn-028.lsst.io/>,
Vera C. Rubin Observatory
- [1197] **[TSTN-029]**, Ribeiro, T., 2022, *The Engineering Facility Database Large File Object Infrastructure*, TSTN-029, URL <https://tstn-029.lsst.io/>,
Vera C. Rubin Observatory

- [1198] **[TSTN-030]**, Ribeiro, T., 2022, *Kafka schemas and schema evolution*, TSTN-030, URL <https://tstn-030.lsst.io/>,
Vera C. Rubin Observatory
- [1199] **[TSTN-031]**, Ribeiro, T., 2022, *Integration Milestone Pf*, TSTN-031, URL <https://tstn-031.lsst.io/>,
Vera C. Rubin Observatory
- [1200] **[TSTN-035]**, Ribeiro, T., 2022, *Handling Targets of Opportunity*, TSTN-035, URL <https://tstn-035.lsst.io/>,
Vera C. Rubin Observatory
- [1201] **[TSTN-034]**, Ribeiro, T., Fausti, A., 2022, *Catcher design*, TSTN-034, URL <https://tstn-034.lsst.io/>,
Vera C. Rubin Observatory
- [1202] **[TSTN-001]**, Ribeiro, T., Ingraham, P., 2022, *Proposal to conduct in-house CSC development.*, TSTN-001, URL <https://tstn-001.lsst.io/>,
Vera C. Rubin Observatory
- [1203] **[TSTN-020]**, Ribeiro, T., Ingraham, P., 2022, *Configuration User Manual*, TSTN-020, URL <https://tstn-020.lsst.io/>,
Vera C. Rubin Observatory
- [1204] **[LSE-150]**, Ribeiro, T., O'Mullane, W., Axelrod, T., Mills, D., 2020, *Control Software Architecture*, LSE-150, URL <https://lse-150.lsst.io/>,
Vera C. Rubin Observatory
- [1205] **[TSTN-023]**, Ribeiro, T., Reuter, M., Mills, D., Owen, R., 2020, *DDS slow-down on large scale system.*, TSTN-023, URL <https://tstn-023.lsst.io/>,
Vera C. Rubin Observatory
- [1206] 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
- [1207] 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
- [1208] Rickman, H., 2001, *Transactions of the International Astronomical Union Proceedings of the Twenty-Fourth General Assembly*. Edited by Hans Rickman. ISBN: 1-58381-087-0. San Francisco: Astronomical Society of the Pacific, 2001., 24, ADS Link

- [1209] Risquez, D., van Leeuwen, F., Brown, A.G.A., 2012, *Experimental Astronomy*, 34, 669, doi:10.1007/s10686-012-9310-5, ADS Link
- [1210] **[PSTN-012]**, Ritz, S., 2019, *LSST Camera Cryostat*, PSTN-012, URL <https://pstn-012.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1211] **[PSTN-014]**, Ritz, S., 2019, *LSST Camera Body and Mechanisms*, PSTN-014, URL <https://pstn-014.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1212] Rixon G., G.M., 2008, *Single-Sign-On Profile: Authentication Mechanisms*, Tech. rep., IVOA, REC-SSO-1.01
- [1213] **[SCTR-13]**, Roberts, A., 2020, *LWV-P58 Ccw + Camera Rotator Interface Verification On Camera Cart Test Plan and Report*, SCTR-13, URL <https://sctr-13.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Report
- [1214] **[SCTR-12]**, Roberts, A., 2021, *LWV-P64: CCW Functional Re-verification Test Plan and Report*, SCTR-12, URL <https://sctr-12.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Report
- [1215] **[SCTR-41]**, Roberts, A., 2022, *LWV-P81: Level 3 System Spread Configuration Integration Test Plan and Report*, SCTR-41, URL <https://sctr-41.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Report
- [1216] Robin, A.C., Reylé, C., Derrière, S., Picaud, S., 2003, *A&A*, 409, 523 (arXiv:astro-ph/0401052), doi:10.1051/0004-6361:200311117, ADS Link
- [1217] 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
- [1218] Robin, A.C., Luri, X., Reylé, C., et al., 2012, ArXiv e-prints (arXiv:1202.0132), ADS Link
- [1219] 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
- [1220] Roby, W., Wu, X., Goldina, T., et al., 2016, In: *Software and Cyberinfrastructure for Astronomy IV*, vol. 9913 of *Proc. SPIE*, 99130Y, doi:10.1117/12.2233042, ADS Link

- [1221] 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
- [1222] Rose, J., Akella, R., Binigar, 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
- [1223] Röser, S., Schilbach, E., Schwan, H., et al., 2008, A&A, 488, 401 (arXiv:0806.1009), doi:10.1051/0004-6361:200809775, ADS Link
- [1224] **[NIST.SP.800-171]**, ROSS, R., VISCUSO, P., GUISSANIE, G., DEMPSEY, K., RIDDLE, M., 2020, Special publication 800-171, protecting controlled unclassified information in nonfederal systems and organizations, URL <https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-171r2.pdf>
- [1225] Royce, W., 1970, In: Proceedings of IEEE WESCON, 1–9, URL <http://www.cs.umd.edu/class/spring2003/cmsc838p/Process/waterfall.pdf>
- [1226] Rucio, Rucio Distributed Data Management Documentation, URL <http://rucio.cern.ch/>
- [1227] Saha, A., Wang, Z., Matheson, T., et al., 2016, In: Observatory Operations: Strategies, Processes, and Systems VI, vol. 9910 of Proc. SPIE, 99100F (arXiv:1611.05914), doi:10.1117/12.2232095, ADS Link
- [1228] Sahlmann, J., 2012, *Observing exoplanet populations with high-precision astrometry*, Ph.D. thesis, Observatoire de Genève, Université de Genève <EMAIL>Johannes.Sahlmann@unige.ch</EMAIL>
- [1229] **[DMTN-018]**, Salnikov, A., 2016, *Re-visiting L1 Database Design*, DMTN-018, URL <https://dmtn-018.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1230] **[DMTN-113]**, Salnikov, A., 2019, *Performance of RDBMS-based PPDB implementation*, DMTN-113, URL <https://dmtn-113.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1231] **[DMTN-156]**, Salnikov, A., 2020, *Performance of Cassandra-based APDB implementation*, DMTN-156, URL <https://dmtn-156.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
-

- [1232] **[DMTN-162]**, Salnikov, A., 2020, *Planning next round of APDB tests*, DMTN-162, URL <https://dmtn-162.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1233] **[DMTN-184]**, Salnikov, A., 2021, *Testing Cassandra APDB implementation on GCP*, DMTN-184, URL <https://dmtn-184.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1234] **[DMTN-191]**, Salnikov, A., 2021, *Schema Migration for Butler Registry Database*, DMTN-191, URL <https://dmtn-191.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1235] Sánchez, C., Carrasco Kind, M., Lin, H., et al., 2014, MNRAS, 445, 1482 (arXiv:1406.4407), doi:10.1093/mnras/stu1836, ADS Link
- [1236] Sarro, L.M., Eyer, L., O'Mullane, W., De Ridder, J., 2012, *Astrostatistics and Data Mining*, Springer, doi:10.1007/978-1-4614-3323-1, ADS Link
- [1237] **[DMTN-197]**, Saunders, C., 2021, *Streak Masking in DM Image Processing*, DMTN-197, URL <https://dmtn-197.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1238] Schechter, P.L., Levinson, R.S., 2012, *Generic misalignment aberration patterns and the subspace of benign misalignment*, vol. 8444 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 844455, doi:10.1117/12.925075
- [1239] Schechter, P.L., Sobel Levinson, R., 2011, PASP, 123, 812 (arXiv:1009.0708), doi:10.1086/661111, ADS Link
- [1240] **[DMTN-013]**, Schellart, P., 2016, *Wrapping C++ with Cython*, DMTN-013, URL <https://dmtn-013.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1241] **[DMTN-014]**, Schellart, P., 2016, *Wrapping C++ with pybind11*, DMTN-014, URL <https://dmtn-014.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1242] **[DMTN-024]**, Schellart, P., 2016, *Pybind11 coding guidelines*, DMTN-024, URL <https://dmtn-024.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [1243] **[DMTN-043]**, Schellart, P., 2017, *Redesign of afw::math::Statistics*, DMTN-043, URL <https://dmtn-043.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1244] **[DMTN-056]**, Schellart, P., Bosch, J., 2021, *Butler Redesign Strawman*, DMTN-056, URL <https://dmtn-056.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1245] **[PSTN-013]**, Schindler, R.H., 2019, *LSST Camera Refrigeration*, PSTN-013, URL <https://pstn-013.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1246] Schmitz, M., Baker, K., Chan, B., et al., 2011, In: Bulletin of the American Astronomical Society, vol. 43 of Bulletin of the American Astronomical Society, ADS Link
- [1247] 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
- [1248] **[LSE-62]**, Schumacher, G., Delgado, F., 2019, *LSST Observatory Control System Requirements*, LSE-62, URL <https://ls.st/LSE-62>
- [1249] 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>
- [1250] **[DMTR-141]**, on behalf of Science Pipelines Team, G.C., 2019, *Characterization Metric Report: Science Pipelines Version 18.0.0*, DMTR-141, URL <https://dmtr-141.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [1251] **[Document-26952]**, Science Working Group of the LSST, Strauss, M.A., 2004, *Towards a Design Reference Mission for the Large Synoptic Survey Telescope*, Document-26952, URL <https://ls.st/Document-26952>
- [1252] Scott, D., Pierfederici, F., Swaters, R., Thomas, B., Valdes, F., 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
- [1253] Seabroke, G.M., Holland, A.D., Burt, D., Robbins, M.S., 2010, *Proc. SPIE*, 7742, 774
- [1254] 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

- [1255] Seaman, R., Williams, R., Allan, A., et al., 2011, Sky Event Reporting Metadata Version 2.0, IVOA Recommendation 11 July 2011 (arXiv:1110.0523), ADS Link
- [1256] **[LSE-60]**, Sebag, J., Krabbendam, V., 2018, *LSST Telescope and Site (TS) Requirements*, LSE-60, URL <https://ls.st/LSE-60>
- [1257] **[DMTN-216]**, Sedaghat, N., 2022, *Deep Learning Approach(es) for LSST Alert Production*, DMTN-216, URL <https://dmtn-216.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1258] **[DMTN-217]**, Sedaghat, N., 2022, *temp*, DMTN-217, URL <https://dmtn-217.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1259] **[LSE-160]**, Selvy, B., 2013, *Verification and Validation Process*, LSE-160, URL <https://ls.st/LSE-160>
- [1260] **[Document-26273]**, Selvy, B., 2017, *Risk & Opportunity Management Report May 2017*, Document-26273, URL <https://ls.st/Document-26273>
- [1261] 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, 0, doi:10.1117/12.2056773, ADS Link
- [1262] Selvy, B.M., Claver, C., Willman, B., et al., 2016, In: Modeling, Systems Engineering, and Project Management for Astronomy VI, vol. 9911 of Proc. SPIE, 99110D, doi:10.1117/12.2233904, ADS Link
- [1263] **[LTS-807]**, Serio, A., 2018, *LSST Operations Visualization Environment (LOVE) Requirements*, LTS-807, URL <https://ls.st/LTS-807>
- [1264] 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
- [1265] **[Document-10762]**, Shaw, R., Strauss, M., 2011, *LSST Data Challenge Handbook Version 1.1*, Document-10762, URL <https://ls.st/Document-10762>
- [1266] Shaw, R., Axelrod, T., Becker, A.C., et al., 2012, In: American Astronomical Society Meeting Abstracts, vol. 219 of American Astronomical Society Meeting Abstracts, #156.03, ADS Link
- [1267] **[Document-15286]**, Shaw, R.A., 2012, *LSST Data Challenge Handbook: Summer 2012 Data Release*, Document-15286, URL <https://ls.st/Document-15286>

- [1268] **[Document-15299]**, Shaw, R.A., 2013, *LSST Data Challenge Handbook: Winter 2013 Early Data Release*, Document-15299, URL <https://ls.st/Document-15299>
- [1269] 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 Proc. SPIE, 0, doi:10.1117/12.857293, ADS Link
- [1270] **[LDM-226]**, Shaw, R.A., Jurić, M., Becker, A., et al., 2013, *LSST Data Challenge Report: Summer 2012/early-Winter 2013*, LDM-226, URL <https://ls.st/LDM-226>
- [1271] **[RTN-017]**, (she/her), R.G., 2021, *Data rights and access management plan*, RTN-017, URL <https://rtn-017.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1272] **[SITCOMTN-031]**, (She/Her), S.T., Ingraham, P., 2022, *SIT-Com Observatory Workflows Charge*, SITCOMTN-031, URL <https://sitcomtn-031.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [1273] Sheldon, E.S., Huff, E.M., 2017, *ApJ*, 841, 24 (arXiv:1702.02601), doi:10.3847/1538-4357/aa704b, ADS Link
- [1274] 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
- [1275] Shuster, M.D., 1993, *Journal of the astronautical sciences*, 41, n.4, 439
- [1276] **[SQR-000]**, Sick, J., 2015, *The LSST DM Technical Note Publishing Platform*, SQR-000, URL <https://sqr-000.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1277] Sick, J., 2016, *LSST DM Community Resources*, URL <http://dx.doi.org/10.5281/zenodo.44643>,
NSF Pavilion Talk given at AAS 227.
- [1278] **[LDM-493]**, Sick, J., 2016, *Data Management Documentation Architecture*, LDM-493, URL <https://ldm-493.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [1279] **[SQR-006]**, Sick, J., 2016, *The LSST the Docs Platform for Continuous Documentation Delivery*, SQR-006, URL <https://sqr-006.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note

- [1280] **[SQR-013]**, Sick, J., 2016, *LSST DocHub Design*, SQR-013, URL <https://sqr-013.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1281] **[SQR-020]**, Sick, J., 2018, *Expressing LSST Project Metadata with JSON-LD*, SQR-020, URL <https://sqr-020.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1282] **[SQR-023]**, Sick, J., 2018, *Design of the notebook-based report system*, SQR-023, URL <https://sqr-023.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1283] **[SQR-032]**, Sick, J., 2019, *Rendering and testing examples and tutorials in LSST documentation*, SQR-032, URL <https://sqr-032.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1284] **[SQR-043]**, Sick, J., 2020, *community.lsst.org forum operations guide*, SQR-043, URL <https://sqr-043.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1285] **[SQR-060]**, Sick, J., 2021, *Design of the Semaphore user broadcast message system for the Rubin Science Platform*, SQR-060, URL <https://sqr-060.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1286] **[SQR-062]**, Sick, J., 2021, *The Times Square service for publishing parameterized Jupyter Notebooks in the Rubin Science platform*, SQR-062, URL <https://sqr-062.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1287] **[SQR-065]**, Sick, J., 2022, *Design of Noteburst, a programatic JupyterLab notebook execution service for the Rubin Science Platform*, SQR-065, URL <https://sqr-065.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1288] **[SQR-011]**, Sick, J., Economou, F., 2016, *LSST Data Management Communication & Publication Platforms*, SQR-011, URL <https://sqr-011.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1289] **[SQR-019]**, Sick, J., Fausti, A., 2018, *LSST Verification Framework API Demonstration*, SQR-019, URL <https://sqr-019.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1290] 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

- [1291] **[DMTN-030]**, Sick, J., Gill, M.S.S., Krughoff, S., Swinbank, J., 2018, *Science Pipelines Documentation Design*, DMTN-030, URL <https://dmtn-030.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1292] **[ITTN-013]**, Silva, C., 2020, *VLAN Assignments*, ITTN-013, URL <https://ittn-013.lsst.io/>,
Vera C. Rubin Observatory
- [1293] **[ITTN-020]**, Silva, C., 2020, *Summit Service Levels*, ITTN-020, URL <https://ittn-020.lsst.io/>,
Vera C. Rubin Observatory
- [1294] **[ITTN-021]**, Silva, C., 2020, *Base Service Levels*, ITTN-021, URL <https://ittn-021.lsst.io/>,
Vera C. Rubin Observatory
- [1295] **[ITTN-029]**, Silva, C., 2020, *NCSA test stand relocation*, ITTN-029, URL <https://ittn-029.lsst.io/>,
Vera C. Rubin Observatory
- [1296] **[ITTN-031]**, Silva, C., 2020, *LHN Testing Plan*, ITTN-031, URL <https://ittn-031.lsst.io/>,
Vera C. Rubin Observatory
- [1297] **[ITTN-032]**, Silva, C., 2020, *Level 3 Integration Lab*, ITTN-032, URL <https://ittn-032.lsst.io/>,
Vera C. Rubin Observatory
- [1298] **[ITTN-033]**, Silva, C., 2020, *Notifications Workflow*, ITTN-033, URL <https://ittn-033.lsst.io/>,
Vera C. Rubin Observatory
- [1299] **[ITTN-037]**, Silva, C., 2021, *IT Linux Repo*, ITTN-037, URL <https://ittn-037.lsst.io/>,
Vera C. Rubin Observatory
- [1300] **[ITTN-038]**, Silva, C., 2021, *Cisco ACI Migration*, ITTN-038, URL <https://ittn-038.lsst.io/>,
Vera C. Rubin Observatory
- [1301] **[ITTN-039]**, Silva, C., 2021, *Summit Computer Room Revamp*, ITTN-039, URL <https://ittn-039.lsst.io/>,
Vera C. Rubin Observatory

- [1302] **[ITTN-042]**, Silva, C., 2021, *IT Priorities Planning*, ITTN-042, URL <https://ittn-042.lsst.io/>,
Vera C. Rubin Observatory
- [1303] **[ITTN-030]**, Silva, C., 2022, *Tucson test stand Upgrade*, ITTN-030, URL <https://ittn-030.lsst.io/>,
Vera C. Rubin Observatory
- [1304] **[ITTN-044]**, Silva, C., 2022, *LHN Specifications and Design Documents Catalog*, ITTN-044, URL <https://ittn-044.lsst.io/>,
Vera C. Rubin Observatory
- [1305] **[ITTN-055]**, Silva, C., 2022, *Disaster Recovery*, ITTN-055, URL <https://ittn-055.lsst.io/>,
Vera C. Rubin Observatory
- [1306] **[ITTN-056]**, Silva, C., 2022, *Disaster Recovery - Network*, ITTN-056, URL <https://ittn-056.lsst.io/>,
Vera C. Rubin Observatory
- [1307] **[ITTN-057]**, Silva, C., 2022, *Disaster Recovery - Computing*, ITTN-057, URL <https://ittn-057.lsst.io/>,
Vera C. Rubin Observatory
- [1308] **[ITTN-058]**, Silva, C., 2022, *Disaster Recovery - Infrastructure Support Devices*, ITTN-058, URL <https://ittn-058.lsst.io/>,
Vera C. Rubin Observatory
- [1309] **[ITTN-061]**, Silva, C., 2022, *Summit Computing Cluster*, ITTN-061, URL <https://ittn-061.lsst.io/>,
Vera C. Rubin Observatory
- [1310] **[ITTN-059]**, Silva, C., Ingraham, P., 2022, *Maintenance Window*, ITTN-059, URL <https://ittn-059.lsst.io/>,
Vera C. Rubin Observatory
- [1311] **[ITTN-043]**, Silva, C., Toro, E., Hoblitt, J., Constanzo, J., 2021, *Rubin Network Re-Engineering*, ITTN-043, URL <https://ittn-043.lsst.io/>,
Vera C. Rubin Observatory

- [1312] **[ITTN-040]**, Silva, C., Maulen, G., Tapia, D., 2022, *Camera Fibers*, ITTN-040, URL <https://ittn-040.lsst.io/>,
Vera C. Rubin Observatory
- [1313] 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
- [1314] Simon, J.L., 1983, *A&A*, 120, 197, ADS Link
- [1315] **[SCTR-11]**, Siruno, K., 2020, *LW-P59 Camera Rotator Functional Re-Verification Test Plan and Report*, SCTR-11, URL <https://sctr-11.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Report
- [1316] Sivia, D., 1996, *Data Analysis. A Bayesian Tutorial*, OUP, 1 edn.
- [1317] Skrutskie, M.F., Cutri, R.M., Stiening, R., et al., 2006, *The Astronomical Journal*, 131, doi:10.1086/498708, ADS Link
- [1318] **[DMTN-086]**, Slater, C., 2018, *Next-to-the-Database Processing Use Cases*, DMTN-086, URL <https://dmtn-086.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1319] **[RTN-027]**, Slater, C., Rawls, M., 2022, *Validation of the DP0.2 Processing*, RTN-027, URL <https://rtn-027.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1320] **[DMTN-006]**, Slater, C., Jurić, M., Ivezić, Ž., Jones, L., 2016, *False Positive Rates in the LSST Image Differencing Pipeline*, DMTN-006, URL <https://dmtn-006.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1321] **[PSTN-045]**, Slater, C.T., 2019, *LSST Petascale Distributed Database*, PSTN-045, URL <https://pstn-045.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1322] **[LDM-523]**, Slater, C.T., Jones, R.L., Bellm, E., Jurić, M., 2017, *Impact of a Heterogeneous Focal Plane on LSST Image Differencing*, LDM-523, URL <https://ls.st/LDM-523>
- [1323] 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
- [1324] 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 *Proc. SPIE*, 0, doi:10.1117/12.858322, ADS Link

- [1325] **[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*, Document-11622, URL <https://ls.st/Document-11622>
- [1326] **[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*, Document-10548, URL <https://ls.st/Document-10548>
- [1327] Smolčić, V., Ivezić, Ž., Knapp, G.R., et al., 2004, ApJ, 615, L141 (arXiv:astro-ph/0403218), doi:10.1086/426475, ADS Link
- [1328] Soderhjelm, S., 2004, *Theoretical modelling of observational double-star distribution functions.*, Tech. rep., ESA, DMS-SS-05
- [1329] Söderhjelm, S., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) ESA SP-576: The Three-Dimensional Universe with Gaia, 97–+, ADS Link
- [1330] Soffel, M., Klioner, S.A., Petit, G., et al., 2003, AJ, 126, 2687 (arXiv:astro-ph/0303376), doi:10.1086/378162, ADS Link
- [1331] Software, T., 2005, *TIOBE Programming Community Index*, Tech. rep., TIOBE, URL <http://www.tiobe.com/tiobe-index>
- [1332] for Software Standardisation, E.B., Control, 2004, *Java Coding Standards*, Tech. rep., ESA, URL http://www.rssd.esa.int/l1ink/livelink/Java_coding_standards.pdf?func=doc.Fetch&nodeId=504569&docTitle=Java+coding+standards&vernum=1
- [1333] Sordo, R., Vallenari, A., Tantaló, R., et al., 2011, Journal of Physics Conference Series, 328, 012006, doi:10.1088/1742-6596/328/1/012006, ADS Link
- [1334] **[NIST.800-114]**, Souppaya, M., Scarfone, K., 2016, COMPUTER SECURITY, URL <https://doi.org/10.6028/NIST.SP.800-114r1>
- [1335] **[NIST.800-46]**, Souppaya, M., Scarfone, K., 2016, COMPUTER SECURITY, URL <https://doi.org/10.6028/NIST.SP.800-46r2>
- [1336] Sozzetti, A., 2005, PASP, 117, 1021 (arXiv:astro-ph/0507115), doi:10.1086/444487, ADS Link
- [1337] 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

- [1338] Spite, M., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) ESA SP-576: The Three-Dimensional Universe with Gaia, 645–+, ADS Link
- [1339] Springel, V., White, S.D.M., Jenkins, A., et al., 2005, *Nature*, 435, 629 (arXiv:astro-ph/0504097), doi:10.1038/nature03597, ADS Link
- [1340] Spyak, P., Wolfe, W., 1991, *Optical Engineering*, 31, 1746
- [1341] **[PSTN-035]**, Stalder, B., 2020, *Integration, Test and Commissioning Results from LSST Commissioning Camera*, PSTN-035, URL <https://pstn-035.lsst.io/>, Vera C. Rubin Observatory Project Science Technical Note
- [1342] **[SITCOMTN-036]**, Stalder, B., 2022, *Image Quality Control - Concept of Operations*, SITCOMTN-036, URL <https://sitcomtn-036.lsst.io/>, Vera C. Rubin Observatory Commissioning Technical Note
- [1343] Stallman, R., 2001, *GNU Coding Standards*, Tech. rep., GNU
- [1344] **[DMTN-099]**, Stephens, C., 2018, *Options for Generating Unique IDs in the LSST Gen3 Butler Registry*, DMTN-099, URL <https://dmtn-099.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1345] Stetson, P.B., 1996, *PASP*, 108, 851, doi:10.1086/133808, ADS Link
- [1346] **[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>
- [1347] **[ITTN-053]**, Stockebrand, H., 2022, *Securing VPN service with Multi-Factor Authentication*, ITTN-053, URL <https://ittn-053.lsst.io/>, Vera C. Rubin Observatory
- [1348] **[ITTN-060]**, Stockebrand, H., 2022, *Network Automation*, ITTN-060, URL <https://ittn-060.lsst.io/>, Vera C. Rubin Observatory
- [1349] Stone, R.C., 1996, *PASP*, 108, 1051, doi:10.1086/133831, ADS Link
- [1350] 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>

- [1351] 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
- [1352] **[RDO-051]**, Strauss, M., the Rubin Science Advisory Council, 2022, *Users Committee Charge*, RDO-051, URL <https://rdo-051.lsst.io/>, Vera C. Rubin Observatory
- [1353] Street, R.A., Bowman, M., Saunders, E.S., Boroson, T., 2018, In: Software and Cyberinfrastructure for Astronomy V, vol. 10707 of Proc. SPIE, 1070711 (arXiv:1806.09557), doi:10.1117/12.2312293, ADS Link
- [1354] **[SITCOMTN-022]**, Stubbs, C., 2021, *Aux Tel Tracking Problem Report Nov 2021*, SITCOMTN-022, URL <https://sitcomtn-022.lsst.io/>, Vera C. Rubin Observatory Commissioning Technical Note
- [1355] **[SITCOMTN-021]**, Stubbs, C., Urbach, E., 2021, *Image Quality Team Report: A First Look at Auxiliary Telescope Tracking*, SITCOMTN-021, URL <https://sitcomtn-021.lsst.io/>, Vera C. Rubin Observatory Commissioning Technical Note
- [1356] **[PSTN-011]**, Stubbs, C.W., 2019, *LSST Camera Rafts*, PSTN-011, URL <https://pstn-011.lsst.io/>, Vera C. Rubin Observatory Project Science Technical Note
- [1357] **[SITCOMTN-038]**, Suberlak, C., 2022, *AuxTel data analysis: images to Zernikes*, SITCOMTN-038, URL <https://sitcomtn-038.lsst.io/>, Vera C. Rubin Observatory Commissioning Technical Note
- [1358] **[DMTR-22]**, Suberlak, K., Ivezić, Ž., The PDAC Team, 2017, *Prototype Data Access Center: User Report*, DMTR-22, URL <https://ls.st/DMTR-22>
- [1359] **[DMTN-077]**, Suberlak, K., Slater, C., Ivezić, Ž., 2018, *LSST Fall 2017 Crowded Fields Testing*, DMTN-077, URL <https://dmtn-077.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1360] **[DMTN-012]**, Sullivan, I., 2016, *StarFast - A Fast Simulation Building Tool for Testing Algorithms*, DMTN-012, URL <https://dmtn-012.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1361] **[DMTN-019]**, Sullivan, I., 2016, *Dipoles in difference imaging from DCR*, DMTN-019, URL <https://dmtn-019.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note

- [1362] **[DMTN-037]**, Sullivan, I., 2018, *DCR-matched template generation*, DMTN-037, URL <https://dmtn-037.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1363] **[DMTN-121]**, Sullivan, I., 2019, *Impact of variable seeing on DCR coadd generation*, DMTN-121, URL <https://dmtn-121.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1364] **[DMTN-171]**, Sullivan, I., Bellm, E., 2021, *Fall 2020 status of crowded field processing with the LSST Alert Production Pipelines*, DMTN-171, URL <https://dmtn-171.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1365] **[DMTN-017]**, Sullivan, I.S., Reiss, D.J., 2015, *Differential Chromatic Refraction: literature overview*, DMTN-017, URL <https://dmtn-017.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1366] support, D., 2006, *Linux Deployment guide*, Tech. rep., Dell,
<http://support.dell.com/support/edocs/software/appora10/lin10g/en/dg/10g21en0.pdf>
- [1367] **[LPM-55]**, Sweeney, D., McKercher, R., 2013, *Project Quality Assurance Plan*, LPM-55,
URL <https://ls.st/LPM-55>
- [1368] 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 *Proc. SPIE*, 0, doi:10.1117/12.857301, ADS Link
- [1369] Swinbank, J., 2014, *Astronomy and Computing*, 7, 12 (arXiv:1409.4805),
doi:10.1016/j.ascom.2014.09.001
- [1370] 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
- [1371] 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
- [1372] **[LDM-622]**, Swinbank, J., 2018, *Data Management QA Strategy Working Group Charge*, LDM-622, URL <https://ls.st/LDM-622>

- [1373] **[DMTR-112]**, Swinbank, J., 2019, *LDM-503-07 (Camera Data Processing) Test Plan and Report*, DMTR-112, URL <https://dmtr-112.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [1374] **[DMTR-192]**, Swinbank, J., 2020, *LDM-503-11b: Science Pipelines Fall 2019 Release Test Plan and Report*, DMTR-192, URL <https://dmtr-192.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [1375] **[DMTN-158]**, Swinbank, J., O'Mullane, W., 2022, *DM Milestone Summary*, DMTN-158, URL <https://dmtn-158.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1376] **[DMTR-14]**, Swinbank, J., Bosch, J., Krughoff, S., 2016, *Characterization Metric Report: Science Pipelines Version 12.0*, DMTR-14, URL <https://ls.st/DMTR-14>
- [1377] **[LDM-151]**, Swinbank, J., Axelrod, T., Becker, A., et al., 2020, *Data Management Science Pipelines Design*, LDM-151, URL <https://ldm-151.lsst.io/>,
Vera C. Rubin Observatory Data Management Controlled Document
- [1378] **[DMTN-044]**, Swinbank, J.D., 2017, *LSST DM Software Release Considerations*, DMTN-044, URL <https://dmtn-044.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1379] **[DMTR-111]**, Swinbank, J.D., 2019, *LDM-503-09a (Science Pipelines Fall 2018 Release) Test Plan and Report*, DMTR-111, URL <https://dmtr-111.lsst.io/>,
Vera C. Rubin Observatory Data Management Test Report
- [1380] Szalay, A.S., Gray, J., Thakar, A.R., et al., 2002, eprint arXiv:cs/0202013 (arXiv:cs/0202013), ADS Link
- [1381] Szalay, A.S., Gray, J., VandenBerg, J., 2002, In: J. A. Tyson & S. Wolff (ed.) Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, vol. 4836 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 333-338 (arXiv:cs/0208013), doi:10.1117/12.461427, ADS Link
- [1382] Szalay, A.S., Gray, J., Fekete, G., et al., 2007, eprint arXiv:cs/0701164 (arXiv:cs/0701164), ADS Link
- [1383] 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/>
-

- [1384] **[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*, Publication-145, URL <https://ls.st/Publication-145>
- [1385] Tabur, V., 2007, PASA, 24, 189 (arXiv:0710.3618), doi:10.1071/AS07028, ADS Link
- [1386] Taff, L.G., Bucciarelli, B., Lattanzi, M.G., 1990, ApJ, 361, 667, doi:10.1086/169230, ADS Link
- [1387] **[ITTN-045]**, Tapia, D., Silva, C., 2021, *Summit Onboarding Procedure*, ITTN-045, URL <https://ittn-045.lsst.io/>, Vera C. Rubin Observatory
- [1388] Tapiador, D., O'Mullane, W., Browni, A.G.A., et al., 2014, Computer Physics Communications, 185, doi:10.1016/j.cpc.2014.02.010
- [1389] Taylor, M., Boch, T., Fitzpatrick, M., et al., 2011, ArXiv e-prints (arXiv:1110.0528), ADS Link
- [1390] 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
- [1391] project team, A.S., 2002, *Gaia System Level Technical Reassessment Study*, Tech. rep., EADS Astrium, EF5/FR/PC/038.02
- [1392] team, E.A.G., 2005, *GAIA Definition Study*, Tech. rep., EADS/Astrium, Final Presentation, Noordwijk, June 8, 2005
- [1393] Team, G.P., 2006, *Gaia Mission Implementation Requirement Document*, Tech. rep., ESA, GAIA-EST-RQ-00457
- [1394] **[RTN-004]**, Team, T.C.E., the Operations Executive Team, 2022, *Guidelines for Community Participation in Data Preview 0*, RTN-004, URL <https://rtn-004.lsst.io/>, Vera C. Rubin Observatory Technical Note
- [1395] **[LEP-031]**, Team, T.L.E., 2018, *LSST EPO Design*, LEP-031, URL <https://ls.st/LEP-031>
- [1396] Texier, D., 2005, *Note on Science Operations Ground Segment Documentation*, Tech. rep., ESA, SOGS-TN-ESAC-DT-001

- [1397] Thain, D., Tannenbaum, T., Livny, M., 2005, *Concurrency - Practice and Experience*, 17, 323, URL <https://research.cs.wisc.edu/htcondor/doc/condor-practice.pdf>
- [1398] Thakar, A.R., 2008, *Computing in Science and Engineering*, 10, 9, doi:10.1109/MCSE.2008.17, ADS Link
- [1399] 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
- [1400] The Gaia Team, *Science Performance of the Gaia Mission*, URL <https://www.cosmos.esa.int/web/gaia/science-performance>
- [1401] **[ITTN-007]**, Thebo, A., 2020, *Infrastructure Monitoring*, ITTN-007, URL <https://ittn-007.lsst.io/>,
Vera C. Rubin Observatory
- [1402] **[ITTN-008]**, Thebo, A., 2020, *Cerro Pachon/La Serena VPN*, ITTN-008, URL <https://ittn-008.lsst.io/>,
Vera C. Rubin Observatory
- [1403] **[ITTN-009]**, Thebo, A., 2020, *Summit Time Synchronization*, ITTN-009, URL <https://ittn-009.lsst.io/>,
Vera C. Rubin Observatory
- [1404] **[ITTN-010]**, Thebo, A., Hoblitt, J., 2020, *User Identification and Authorization*, ITTN-010, URL <https://ittn-010.lsst.io/>,
Vera C. Rubin Observatory
- [1405] Tholen, D.J., 1984, Ph.D. Thesis
- [1406] **[PSTN-006]**, Thomas, S., 2019, *Performance of the LSST Telescope*, PSTN-006, URL <https://pstn-006.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1407] **[SCTR-51]**, Thomas, S., 2022, *LW-P84: Alignment System Verification Test Plan and Report*, SCTR-51, URL <https://sctr-51.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Report
- [1408] **[SITCOMTN-023]**, Thomas, S., Guy, L., Roberts, A., 2022, *SIT-COM Work Management and Organization*, SITCOMTN-023, URL <https://sitcomtn-023.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note

- [1409] Thomas, S.J., Chandrasekharan, S., Lotz, P., et al., 2016, In: Ground-based and Airborne Telescopes VI, vol. 9906 of Proc. SPIE, 99063B, doi:10.1117/12.2231798, ADS Link
- [1410] **[Document-31100]**, Thomson, J.R., 2019, *LSST Benchmarkin of Qserv and BigQuery*, Document-31100, URL <https://ls.st/Document-31100>
- [1411] **[SQR-015]**, Thornton, A., 2017, *Creating Microservices for api.lsst.codes*, SQR-015, URL <https://sqr-015.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1412] **[SQR-052]**, Thornton, A., 2021, *Proposal for privilege separation in RSP Notebook Aspect containers*, SQR-052, URL <https://sqr-052.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1413] **[SQR-054]**, Thornton, A., 2021, *Moving RSP Interactive Notebook containers to conda*, SQR-054, URL <https://sqr-054.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1414] **[SQR-059]**, Thornton, A., 2021, *RSP Notebook container tag conventions*, SQR-059, URL <https://sqr-059.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1415] **[SQR-064]**, Thornton, A., 2022, *The sciplat-lab build process*, SQR-064, URL <https://sqr-064.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1416] **[SQR-066]**, Thornton, A., 2022, *Proposal for separate RSP User Lab Spawning Service*, SQR-066, URL <https://sqr-066.lsst.io/>,
Vera C. Rubin Observatory SQuaRE Technical Note
- [1417] **[DMTN-112]**, Thornton, A., Allbery, R., 2020, *LSST DM Vault*, DMTN-112, URL <https://dmtn-112.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1418] **[DMTN-066]**, Thrush, S., 2017, *Memory Needs of Pipeline tasks*, DMTN-066, URL <https://dmtn-066.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1419] **[DMTN-161]**, Thrush, S., 2020, *Node Utilization for HSC-RC2 Reprocessing Jobs*, DMTN-161, URL <https://dmtn-161.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note

- [1420] **[DMTN-004]**, Thukral, V., 2016, *Debugging in Docker Containers*, DMTN-004, URL <https://dmtn-004.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1421] **[DMTN-009]**, Thukral, V., 2016, *Vertical-partition Join Performance in MySQL*, DMTN-009, URL <https://dmtn-009.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1422] **[DMTR-16]**, Thukral, V., 2017, *Qserv Fall 16 Large Scale Tests/KPMs*, DMTR-16, URL <https://ls.st/DMTR-16>
- [1423] **[DMTR-17]**, Thukral, V., 2018, *Qserv Fall 17 Large Scale Tests/KPMs*, DMTR-17, URL <https://ls.st/DMTR-17>
- [1424] **[PSTN-009]**, Tiago, R., 2019, *LSST Observing System Software Architecture*, PSTN-009, URL <https://pstn-009.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1425] **[PSTN-007]**, Tiago, R., 2020, *The LSST Scheduler Overview and Performance*, PSTN-007, URL <https://pstn-007.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1426] 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>
- [1427] Tomaney, A.B., Crofts, A.P.S., 1996, AJ, 112, 2872 (arXiv:astro-ph/9610066), doi:10.1086/118228, ADS Link
- [1428] 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>
- [1429] **[DMTN-047]**, Tommaney, J., Becla, J., Lim, K.T., Wang, D., 2011, *Tests with InfiniDB*, DMTN-047, URL <https://dmtn-047.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1430] TOP500, URL <http://www.top500.org>,
TOP500 Supercomputer Sites

- [1431] **[RTN-026]**, Tucker, D.L., 2022, *Validation Tests of the DP0.1 TAPserver on IDF*, RTN-026, URL <https://rtn-026.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1432] 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
- [1433] Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.), 2005, *ESA SP-576: The Three-Dimensional Universe with Gaia*
- [1434] 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), ADS Link
- [1435] **[LSE-63]**, Tyson, T., DQA Team, Science Collaboration, 2017, *Data quality Assurance Plan: Requirements for the LSST Data Quality Assessment Framework*, LSE-63, URL <https://lsst.org/LSE-63>
- [1436] Ulin, T., 2013, *Driving MySQL Innovation*, Percona Live: MySQL Conference and Expo, URL <https://www.youtube.com/watch?v=0pHTV59I1gs>
- [1437] 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>
- [1438] 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>
- [1439] 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>
- [1440] 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>
- [1441] 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](http://www.omg.org/docs/space/2003-03-04)

- [1442] **[LDM-130]**, Unknown, 2017, *LSST Science User Interface and Tools Requirements*, LDM-130, URL <https://ls.st/LDM-130>
- [1443] **[LDM-532]**, Unknown, 2017, *NCSA Enclave Test Specification*, LDM-532, URL <https://ls.st/LDM-532>
- [1444] **[LDM-535]**, Unknown, 2017, *Data Backbone Test Specification*, LDM-535, URL <https://ls.st/LDM-535>
- [1445] **[LDM-536]**, Unknown, 2017, *Data Backbone Data Services Test Specification*, LDM-536, URL <https://ls.st/LDM-536>
- [1446] **[LDM-537]**, Unknown, 2017, *Data Backbone Infrastructure Test Specification*, LDM-537, URL <https://ls.st/LDM-537>
- [1447] **[LDM-539]**, Unknown, 2017, *Data Access Center Enclave Test Specification*, LDM-539, URL <https://ls.st/LDM-539>
- [1448] **[LDM-541]**, Unknown, 2017, *Commissioning Cluster Enclave Test Specification*, LDM-541, URL <https://ls.st/LDM-541>
- [1449] **[SITCOMTN-034]**, Urbach, E., 2022, *Image Quality Team Work Repository*, SITCOMTN-034, URL <https://sitcomtn-034.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [1450] Vagg, D., O’Callaghan, D., O’Hógáin, F., et al., 2016, In: Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, vol. 9913 of SPIE, 99131V (arXiv:1605.09287), doi:10.1117/12.2233619, ADS Link
- [1451] Vagg, D., O’Callaghan, D., O’Hógáin, F., et al., 2016, In: Software and Cyberinfrastructure for Astronomy IV, vol. 9913 of Proc. SPIE, 99131V (arXiv:1605.09287), doi:10.1117/12.2233619, ADS Link
- [1452] **[Gaia-NT-32000-115-CNES]**, Valadier, J.C., 2008, *Etude de risque EBIOS du systme CNES-DPC (Limited distribution)*,
Gaia-NT-32000-115-CNES
- [1453] Valentijn, E.A., McFarland, J.P., Snigula, J., et al., 2007, In: R. A. Shaw, F. Hill, & D. J. Bell (ed.) *Astronomical Data Analysis Software and Systems XVI*, vol. 376 of Astronomical Society of the Pacific Conference Series, 491 (arXiv:astro-ph/0702189), ADS Link
- [1454] van Dokkum, P.G., 2001, PASP, 113, 1420 (arXiv:astro-ph/0108003), doi:10.1086/323894, ADS Link

- [1455] **[LDM-131]**, van Dyk, S., Levine, D., 2013, *Science User Interface and Science User Tools Conceptual Design*, LDM-131, URL <https://ls.st/LDM-131>
- [1456] van Leeuwen, F., 1997, *Space Science Reviews*, 81, 201, ADS Link
- [1457] van Leeuwen, F., 2005, *A&A*, 439, 805 (arXiv:astro-ph/0505431), doi:10.1051/0004-6361:20053192, ADS Link
- [1458] van Leeuwen, F., Fantino, E., 2005, *A&A*, 439, 791 (arXiv:astro-ph/0505432), doi:10.1051/0004-6361:20053193, ADS Link
- [1459] 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
- [1460] 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
- [1461] VanderPlas, J.T., 2017, ArXiv e-prints (arXiv:1703.09824), ADS Link
- [1462] VanderPlas, J.T., Ivezić, Ž., 2015, *ApJ*, 812, 18 (arXiv:1502.01344), doi:10.1088/0004-637X/812/1/18, ADS Link
- [1463] 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
- [1464] Veron-Cetty, M., Veron, P., 2010, *Astronomy and Astrophysics*, 518, doi:10.1051/0004-6361/201014188, ADS Link
- [1465] Vlemmings, W.H.T., Chatterjee, S., Briske, W.F., et al., 2005, *Memorie della Societa Astronomica Italiana*, 76, 531 (arXiv:astro-ph/0509025), ADS Link
- [1466] van der Vorst, H., 2003, *Iterative Krylov Methods for Large Linear Systems*, Cambridge University Press
- [1467] Vosteen, L.L.A., Draaisma, F., van Werkhoven, W.P., et al., 2009, In: *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
- [1468] Vosteen, L.L.A., Draaisma, F., van Werkhoven, W.P., et al., 2009, In: *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, vol. 7439 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, doi:10.1117/12.825240, ADS Link

- [1469] Vuerli, C., O'Mullane, W., 2000, *DBMS-COTS test week report*, Tech. rep., ESA, PL-COM-OAT-TN-009
- [1470] 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
- [1471] 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
- [1472] 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:<http://doi.acm.org/10.1145/2063348.2063364>
- [1473] 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
- [1474] **[RTN-015]**, Wang, M., 2021, *Brighter-Fatter Correction GPU Optimization Using CUDA C/C++*, RTN-015, URL <https://rtn-015.lsst.io/>, Vera C. Rubin Observatory Technical Note
- [1475] Warell, J., Lagerkvist, C.I., 2006, A&A, submitted
- [1476] **[DMTN-036]**, of Washington), J.P.U., Paris), P.A.L., 2018, *jointcal: Simultaneous Astrometry & Photometry for thousands of Exposures with Large CCD Mosaics*, DMTN-036, URL <https://dmtn-036.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1477] **[DMTN-192]**, Waters, C., 2021, *Visualization of Calibration Verification*, DMTN-192, URL <https://dmtn-192.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1478] **[DMTN-222]**, Waters, C., 2022, *Calibration Generation, Verification, Acceptance, and Certification.*, DMTN-222, URL <https://dmtn-222.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1479] **[DMTN-233]**, Waters, C., 2022, *Queries for Calibration Quality Monitoring*, DMTN-233, URL <https://dmtn-233.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note

- [1480] **[DMTN-148]**, Waters, C.Z., 2021, *DM Calibration Products*, DMTN-148, URL <https://dmtn-148.lsst.io/>,
Vera C. Rubin Observatory Data Management Technical Note
- [1481] Wertz(Editor), J.R., 1978, *Spacecraft Attitude Determination and Control*, Kluwer Academic Publishers, 1 edn.
- [1482] Wickham, H., 2014, *Journal of Statistical Software, Articles*, 59, 1, URL <https://www.jstatsoft.org/v059/i10>, doi:10.18637/jss.v059.i10
- [1483] 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
- [1484] Wilkinson, M.I., 2005, In: Turon, C., O’Flaherty, K.S., Perryman, M.A.C. (eds.) *ESA SP-576: The Three-Dimensional Universe with Gaia*, 651–+, ADS Link
- [1485] Wilkinson, M.I., Evans, N.W., 1999, *MNRAS*, 310, 645 (arXiv:astro-ph/9906197), ADS Link
- [1486] 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
- [1487] Will, C., 1993, *Theory and experiment in gravitational physics*, Cambridge University Press, 2 edn.
- [1488] **[LPM-261]**, Willman, B., Graham, M., O’Mullane, W., Petravick, D., 2018, *Access Policy for LSST Data and Data Access Center*, LPM-261, URL <https://ls.st/LPM-261>,
Superseded by LDO-13
- [1489] Windmark, F., Lindegren, L., Hobbs, D., 2011, *A&A*, 530, A76 (arXiv:1104.2348), doi:10.1051/0004-6361/201116929, ADS Link
- [1490] **[LSE-279]**, Withers, A., 2017, *Concept of Operations for Unified LSST Authentication and Authorization Services*, LSE-279, URL <https://ls.st/LSE-279>
- [1491] **[PSTN-010]**, Wolfe, J., 2019, *LSST Camera Optics*, PSTN-010, URL <https://pstn-010.lsst.io/>,
Vera C. Rubin Observatory Project Science Technical Note
- [1492] **[Document-15077]**, Wolff, S., 2013, *LSST Project Overview*, Document-15077, URL <https://ls.st/Document-15077>

- [1493] **[LPM-73]**, Wolff, S., 2013, *Operations Plan*, LPM-73, URL <https://ls.st/LPM-73>
- [1494] **[Document-13380]**, Wolff, S., Kahn, S., 2013, *Data Rights and Data Management Policy*, Document-13380, URL <https://ls.st/Document-13380>
- [1495] **[Document-10549]**, Wolff, S.C., Kahn, S.M., Krabbendam, V.L., Sweeney, D.W., Tyson, J.A., 2011, *Proposal to the National Science Foundation*, Document-10549, URL <https://ls.st/Document-10549>
- [1496] **[DMTN-008]**, Wood-Vasey, M., 2016, *Introducing validate_drp: Calculate SRD Key Performance Metrics for an output repository*, DMTN-008, URL <https://dmtn-008.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1497] **[DMTR-15]**, Wood-Vasey, M., Swinbank, J., 2017, *Characterization Metric Report: Science Pipelines Version 13.0*, DMTR-15, URL <https://ls.st/DMTR-15>
- [1498] **[DMTN-091]**, Wood-Vasey, M., Bellm, E., Bosch, J., et al., 2020, *Test Datasets for Scientific Performance Monitoring*, DMTN-091, URL <https://dmtn-091.lsst.io/>, Vera C. Rubin Observatory Data Management Technical Note
- [1499] Wood-Vasey, W.M., Rest, A., Smartt, S., et al., 2010, In: *Bulletin of the American Astronomical Society*, vol. 42 of *Bulletin of the American Astronomical Society*, ADS Link
- [1500] Wu, X., Roby, W., Goldina, T., Ly, L., IRSA IPAC, 2015, In: *American Astronomical Society Meeting Abstracts*, vol. 225 of *American Astronomical Society Meeting Abstracts*, #434.06, ADS Link
- [1501] Wu, X., Ciardi, D., Dubois-Felsmann, G., et al., 2016, In: Lorente, N.P.F., Shortridge, K. (eds.) *ADASS XXV*, vol. TBD of *ASP Conf. Ser.*, TBD, ASP, San Francisco
- [1502] Wyrzykowski, L., Hodgkin, S., Blogorodnova, N., Kuposov, S., Burgon, R., 2012, *ArXiv e-prints* (arXiv:1210.5007), ADS Link
- [1503] **[PSTN-008]**, Xin, B., 2020, *Active Optics System Performance of the Simonyi Survey Telescope*, PSTN-008, URL <https://pstn-008.lsst.io/>, Vera C. Rubin Observatory Project Science Technical Note
- [1504] **[PSTN-032]**, Xin, B., 2020, *Performance of Delivered Vera C. Rubin Observatory*, PSTN-032, URL <https://pstn-032.lsst.io/>, Vera C. Rubin Observatory Project Science Technical Note

- [1505] **[SCTR-31]**, Xin, B., 2021, *LWV-P66: M2 Functional Re-verification and SAL Interface Verification Test Plan and Report*, SCTR-31, URL <https://sctr-31.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Report
- [1506] **[SITCOMTN-009]**, Xin, B., 2021, *Command Structure of the AOS CSCs*, SITCOMTN-009,
URL <https://sitcomtn-009.lsst.io/>,
Vera C. Rubin Observatory Commissioning Technical Note
- [1507] Xin, B., Claver, C., Liang, M., et al., 2015, *Appl. Opt.*, 54, 9045 (arXiv:1506.04839),
doi:10.1364/AO.54.009045, ADS Link
- [1508] Xin, B., Roodman, A., Angeli, G., Claver, C., Thomas, S., 2016, *Comparison of LSST and DECam wavefront recovery algorithms*, vol. 9906 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 99064J, doi:10.1117/12.2234456
- [1509] Xin, B., Claver, C.F., Ivezić, Ž., et al., 2018, In: *Proc. SPIE*, vol. 10705 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 107050P,
doi:10.1117/12.2313880, ADS Link
- [1510] Yagi, M., 2012, *PASP*, 124, 1347 (arXiv:1210.8212), doi:10.1086/668891, ADS Link
- [1511] 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
- [1512] YAML, The Official YAML Web Site, URL <http://yaml.org/>
- [1513] **[RTN-032]**, Yang, W., 2022, *Panda/Rucio Multi-site Configuration*, RTN-032, URL <https://rtn-032.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1514] **[RTN-023]**, Yanny, B., Slater, C., Padolski, S., et al., 2021, *Campaign Tooling – tools for generating, monitoring and tracking data processing campaigns*, RTN-023, URL <https://rtn-023.lsst.io/>,
Vera C. Rubin Observatory Technical Note
- [1515] Yasuda, N., Mizumoto, Y., Ohishi, M., et al., 2004, In: F. Ochsenbein, M. G. Allen, & D. Egret (ed.) *Astronomical Data Analysis Software and Systems (ADASS) XIII*, vol. 314 of Astronomical Society of the Pacific Conference Series, 293, ADS Link

- [1516] **[SMTN-004]**, Yoachim, P., 2016, *SMTN-004 LSST Focal Plane Fill Factor From Rotational Dithering*, SMTN-004, URL <https://smtn-004.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [1517] **[SMTN-005]**, Yoachim, P., 2016, *Cloud Statistics via All-Sky Camera*, SMTN-005, URL <https://smtn-005.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [1518] **[SMTN-008]**, Yoachim, P., 2017, *Using GAIA BP/RP to Photometrically Calibrate LSST*, SMTN-008, URL <https://smtn-008.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [1519] **[SMTN-015]**, Yoachim, P., 2021, *Early Rubin Science: Time Needed to Generate Difference Imaging Templates*, SMTN-015, URL <https://smtn-015.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [1520] **[SMTN-016]**, Yoachim, P., 2022, *Surface Brightness Limit Derivations*, SMTN-016, URL <https://smtn-016.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [1521] **[SMTN-017]**, Yoachim, P., 2022, *Survey Strategy Simulation v2.x Results*, SMTN-017, URL <https://smtn-017.lsst.io/>,
Vera C. Rubin Observatory Simulations Team Technical Note
- [1522] **[Document-15125]**, Yoachim, P., Jones, L., Ivezić, Ž., Axelrod, T., 2013, *Photometric Self Calibration Design and Prototype*, Document-15125, URL <https://ls.st/Document-15125>
- [1523] Yoachim, P., Coughlin, M., Angeli, G.Z., et al., 2016, In: *Observatory Operations: Strategies, Processes, and Systems VI*, vol. 9910 of Proc. SPIE, 99101A, doi:10.1117/12.2232947, ADS Link
- [1524] 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
- [1525] Zechmeister, M., Kürster, M., 2009, *A&A*, 496, 577 (arXiv:0901.2573), doi:10.1051/0004-6361:200811296, ADS Link
- [1526] Zellner, B., Tholen, D.J., Tedesco, E.F., 1985, *Icarus*, 61, 355, doi:10.1016/0019-1035(85)90133-2, ADS Link

- [1527] Zicari, R.V., 2011, Objects in Space, URL <http://www.odbms.org/blog/2011/02/objects-in-space/>
- [1528] Ziemke, J.R., Olsen, M.A., Witte, J.C., et al., Journal of Geophysical Research: Atmospheres, 119, 5671, URL <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1002/2013JD020914> (<https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1002/2013JD020914>), doi:10.1002/2013JD020914
- [1529] **[SCTR-61]**, Zorzi, P., 2022, *LW-P93: M1M3 Thermal Control System Verification Testing on Level 3. Test Plan and Report*, SCTR-61, URL <https://sctr-61.lsst.io/>, Vera C. Rubin Observatory Commissioning Technical Report
- [1530] Zucker, S., Mazeh, T., 1994, ApJ, 420, 806, doi:10.1086/173605, ADS Link
- [1531] Zucker, S., Mazeh, T., Santos, N.C., Udry, S., Mayor, M., 2004, A&A, 426, 695, doi:10.1051/0004-6361:20040384, ADS Link