



LARGE SYNOPTIC SURVEY TELESCOPE

Large Synoptic Survey Telescope (LSST) Data Management

Bibliography Verification

Automated Content

LSST-test

Latest Revision: 2019-07-13

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.



Contents

1 Introduction

1

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.

```
\citedsp: [LPM-17]
\citedsp[]: [Verify] [Requirements]
\citeds: (SRD; LPM-17, LSE-29)
\citeds[]: LDM-503
\citep[]{}: [e.g., 408, 183, are interesting]
\cite: [408, 183]
```

References

- [1] 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
- [2] 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
- [3] Aihara, H., Armstrong, R., Bickerton, S., et al., 2017, ArXiv e-prints (arXiv:1702.08449), ADS Link
- [4] Alard, C., Lupton, R.H., 1998, ApJ, 503, 325 (arXiv:astro-ph/9712287), doi:10.1086/305984, ADS Link
- [5] Albrecht, A., Bernstein, G., Cahn, R., et al., 2006, ArXiv Astrophysics e-prints (arXiv:astro-ph/0609591), ADS Link
- [6] Alcock, C., Allsman, R.A., Alves, D., et al., 1999, ApJ, 521, 602 (arXiv:astro-ph/9903215), doi:10.1086/307567, ADS Link

- [7] Alejandro Plazas, A., Bernstein, G., 2012, *PASP*, 124, 1113 (arXiv:1204.1346), doi:10.1086/668294, ADS Link
- [8] Allan, A., Denny, R.B., Swinbank, J.D., 2017, arXiv e-prints (arXiv:1709.01264), ADS Link
- [9] Allende Prieto, C., 2007, *AJ*, 134, 1843 (arXiv:0707.2764), doi:10.1086/522051, ADS Link
- [10] **[LSE-16]**, Allsman, R., Dubois-Felsmann, G., Kantor, J., 2009, *LSST Software Development Plan*, LSE-16, URL <https://ls.st/LSE-16>
- [11] **[DMTN-080]**, AlSayyad, Y., 2018, *Coaddition Artifact Rejection and CompareWarp*, DMTN-080, URL <https://dmtn-080.lsst.io>, LSST Data Management Technical Note, draft version
- [12] 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
- [13] 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
- [14] Amaro-Seoane, P., Aoudia, S., Babak, S., et al., 2013, *GW Notes*, Vol. 6, p. 4-110, 6, 4 (arXiv:1201.3621), ADS Link
- [15] Amazon, Amazon Glacier – Cloud Archive, URL <https://aws.amazon.com/glacier/>
- [16] 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
- [17] **[LSE-159]**, Angeli, G., 2013, *Reviews Definitions, Guidelines, and Procedures*, LSE-159, URL <https://ls.st/LSE-159>
- [18] **[Document-11920]**, Angeli, G., McKercher, R., 2013, *Document Cover Page and Style Guide*, Document-11920, URL <https://ls.st/Document-11920>
- [19] **[Document-9224]**, Angeli, G., McKercher, R., 2013, *Change Controlled Document Cover Page and Style Guide*, Document-9224, URL <https://ls.st/Document-9224>
- [20] **[LPM-19]**, Angeli, G., McKercher, R., 2015, *Change Control Process*, LPM-19, URL <https://ls.st/LPM-19>

- [21] Ansari, S., Torra, J., López, P.P., et al., Algorithm Interface Control Document, CCB-GDAAS-ICD-001
- [22] Ansari, S.G., Torra, J., Luri, X., et al., 2003, In: Science and Technology, ASP Conference Series, vol. 298, page 97
- [23] 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
- [24] **[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>
- [25] Arenou, F., Chéreau, F., private communication
- [26] Arenou, F., Lindegren, L., Froeschle, M., et al., 1995, A&A, 304, 52, ADS Link
- [27] Auer, L.H., Standish, E.M., 2000, AJ, 119, 2472, doi:10.1086/301325, ADS Link
- [28] Axelrod, T., 2005, Events in the LSST, URL http://wiki.ivoa.net/internal/IV0A/VOEventSchedule/tim_axelrod.ppt, Presented at the IVOA VOEvent Workshop, Pasadena
- [29] 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
- [30] Axelrod, T., Kantor, J., 2010, In: Supercomputing 2010, LSST Corporation, Supercomputing Conference, URL <https://docushare.lsstcorp.org/docushare/dsweb/Get/Document-10284/>
- [31] 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
- [32] 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
- [33] 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

- [34] **[Document-5356]**, Axelrod, T., Allsman, R., Kantor, J., et al., 2008, *LSST Data Challenge 2*, Document-5356, URL <https://ls.st/Document-5356>
- [35] 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
- [36] **[LDM-17]**, Axelrod, T., et al., 2009, *LSST Data Challenge 3a Final Report*, LDM-17, URL <https://ls.st/LDM-17>
- [37] 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
- [38] 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
- [39] 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
- [40] 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
- [41] Baccaro, S., Piegari, A., Di Sarcina, I., Cecilia, A., 2005, *IEEE transactions on nuclear science*, 52, 1779
- [42] Bailer-Jones, C.A.L., 2002, *Astrophysics and Space Science*, 280, 21 (arXiv:astro-ph/0201014), ADS Link
- [43] 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
- [44] Bailer-Jones, C.A.L., 2004, *A&A*, 419, 385 (arXiv:astro-ph/0402591), doi:10.1051/0004-6361:20035779, ADS Link
- [45] 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

- [46] Bailer-Jones, C.A.L., 2010, MNRAS, 403, 96 (arXiv:0911.5242), doi:10.1111/j.1365-2966.2009.16125.x, ADS Link
- [47] 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
- [48] Bastian, U., Biermann, M., 2005, A&A, 438, 745, doi:10.1051/0004-6361:20042372, ADS Link
- [49] Bastian, U., Gilmore, G., Halbwachs, J., et al., 1993, *ROEMER*, Tech. rep., Lund Observatory, Proposal for a Third Medium Size ESA Mission (M3), Lund 1993
- [50] Bauer, A.E., Bellm, E.C., Bolton, A.S., et al., 2019, arXiv e-prints, arXiv:1905.05116 (arXiv:1905.05116), ADS Link
- [51] 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
- [52] Beck, K., 1999, *Extreme Programming Explained: Embrace Change*, Addison-Wesley, 1st edn.
- [53] 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
- [54] 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
- [55] 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
- [56] 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
- [57] Becker, A., Silvestri, N., Owen, R., Ivezić, Ž., Lupton, R., 2007, PASP, 119, 1462 (arXiv:0712.0637), doi:10.1086/524710, ADS Link

- [58] **[LDM-227]**, Becker, A., Krughoff, S., Connolly, A., et al., 2013, *Report on Late Winter 2013 Production: Image Differencing*, LDM-227, URL <https://ls.st/LDM-227>
- [59] **[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>
- [60] 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
- [61] 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
- [62] 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
- [63] **[DMTN-069]**, Becker, A.C., Krughoff, K.S., Connolly, A., 2014, *Report on Winter 2014 Production: Image Differencing*, DMTN-069, URL <https://dmtn-069.lsst.io>, LSST Data Management Technical Note
- [64] **[DMTN-070]**, Becker, A.C., Krughoff, K.S., Connolly, A., 2014, *Report on Summer 2014 Production: Analysis of DCR*, DMTN-070, URL <https://dmtn-070.lsst.io>, LSST Data Management Technical Note
- [65] **[Document-1386]**, Becla, J., 2006, *Database Ingest Tests*, Document-1386, URL <https://ls.st/Document-1386>
- [66] 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
- [67] **[Document-8256]**, Becla, J., 2009, *Evaluation of Database Solutions*, Document-8256, URL <https://ls.st/Document-8256>
- [68] Becla, J., 2010, In: Astronomical Data Analysis Software and Systems XX, ADASS XX, SLAC National Accelerator Laboratory
- [69] **[DMTR-12]**, Becla, J., 2013, *Qserv 300 node test*, DMTR-12, URL <https://ls.st/DMTR-12>

- [70] **[LDM-153]**, Becla, J., 2013, *LSST Database Baseline Schema*, LDM-153, URL <https://ls.st/LDM-153>
- [71] 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
- [72] 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
- [73] **[DMTR-13]**, Becla, J., 2015, *Qserv Summer 15 Large Scale Tests*, DMTR-13, URL <https://ls.st/DMTR-13>
- [74] **[LDM-555]**, Becla, J., 2017, *Data Management Database Requirements*, LDM-555, URL <https://ls.st/LDM-555>
- [75] Becla, J., Lim, K.T., 2008, *Data Science Journal*, 7, doi:10.2481/dsj.7.1
- [76] Becla, J., Lim, K.T., 2008, *Data Science Journal*, 7, doi:10.2481/dsj.7.88
- [77] **[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>
- [78] **[LDM-141]**, Becla, J., Lim, K.T., 2013, *Data Management Storage Sizing and I/O Model*, LDM-141, URL <https://ls.st/LDM-141>
- [79] **[LDM-463]**, Becla, J., Pease, N., 2017, *Data Access Design*, LDM-463, URL <https://ls.st/LDM-463>
- [80] 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>
- [81] Becla, J., Wang, D.L., 2014, In: *Exascale Radio Astronomy*, vol. 2, ADS Link
- [82] 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
- [83] 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

- [84] 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
- [85] Becla, J., Lim, K.T., Wang, D.L., 2010, *Data Science Journal*, 8, MR1, doi:10.2481/dsj.xldb09
- [86] **[DMTN-048]**, Becla, J., Lim, K.T., Wang, D., 2011, *Qserv design prototyping experiments*, DMTN-048, URL <https://dmtn-048.lsst.io>, LSST Data Management Technical Note
- [87] **[Document-11625]**, Becla, J., Lim, K.T., Wang, D., 2011, *Database Architecture*, Document-11625, URL <https://ls.st/Document-11625>
- [88] **[Document-11701]**, Becla, J., Lim, K.T., Wang, D., 2011, *Evaluation of Solid State Disks*, Document-11701, URL <https://ls.st/Document-11701>
- [89] Becla, J., Lim, K.T., Wang, D.L., 2012, *Facts about xldb-2011*, URL <http://www.osti.gov/scitech/biblio/1035489/>
- [90] **[DMTN-046]**, Becla, J., Lim, K.T., Wang, D., 2013, *An investigation of database technologies*, DMTN-046, URL <https://dmtn-046.lsst.io>, LSST Data Management Technical Note
- [91] **[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>
- [92] **[Document-26276]**, Becla, J., Lim, K.T., Wang, D., 2013, *Scalable Partitioning*, Document-26276, URL <https://ls.st/Document-26276>
- [93] **[DMTN-020]**, Becla, J., Economou, F., Gelman, M., et al., 2016, *Project Management Guide*, DMTN-020, URL <https://dmtn-020.lsst.io/>
- [94] **[LDM-472]**, Becla, J., Economou, F., Mueller, F., et al., 2017, *LSST DM Project Management and Tools*, LDM-472, URL <https://ls.st/LDM-472>
- [95] **[LDM-135]**, Becla, J., Wang, D., Monkewitz, S., et al., 2017, *Data Management Database Design*, LDM-135, URL <https://ls.st/LDM-135>
- [96] 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

- [97] 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
- [98] **[DMTR-91]**, Bellm, E., 2018, *LDM-503-05 (Alert Distribution Validation) Test Report*, DMTR-91, URL <https://ls.st/DMTR-91>
- [99] **[DMTR-53]**, Bellm, E., Swinbank, J., 2018, *LDM-503-03 (Alert Generation) Test Report*, DMTR-53, URL <https://ls.st/DMTR-53>
- [100] **[DMTN-085]**, Bellm, E., Chiang, H.F., Fausti, A., et al., 2018, *QA Strategy Working Group Report*, DMTN-085, URL <https://dmtn-085.lsst.io>, LSST Data Management Technical Note
- [101] **[LDM-612]**, Bellm, E., Blum, R., Graham, M., et al., 2019, *Plans and Policies for LSST Alert Distribution*, LDM-612, URL <https://ls.st/LDM-612>
- [102] **[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>
- [103] **[LDM-533]**, Bellm, E.C., 2017, *Level 1 System Software Test Specification*, LDM-533, URL <https://ls.st/LDM-533>
- [104] Benítez, N., 2000, ApJ, 536, 571 (arXiv:astro-ph/9811189), doi:10.1086/308947, ADS Link
- [105] Bernstein, G.M., Armstrong, R., 2014, MNRAS, 438, 1880 (arXiv:1304.1843), doi:10.1093/mnras/stt2326, ADS Link
- [106] Bernstein, G.M., Jarvis, M., 2002, AJ, 123, 583 (arXiv:astro-ph/0107431), doi:10.1086/338085, ADS Link
- [107] 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
- [108] 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
- [109] 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

- [110] Beyer, B., Jones, C., Petoff, J., Murphy, N.R., 2016, *Site Reliability Engineering: How Google Runs Production Systems*, O'Reilly Media, Inc., 1st edn.
- [111] Bickerton, S.J., Lupton, R.H., 2013, MNRAS, 431, 1275 (arXiv:1302.4764), doi:10.1093/mnras/stt244, ADS Link
- [112] 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
- [113] Bloch, J., 2001, *Writing Effective Java*, Addison-Wesley, 1st edn.
- [114] Bloom, J.S., Richards, J.W., Nugent, P.E., et al., 2012, PASP, 124, 1175 (arXiv:1106.5491), doi:10.1086/668468, ADS Link
- [115] **[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/>
- [116] 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
- [117] 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
- [118] Bombrun, A., Lindegren, L., Holl, B., Jordan, S., 2010, A&A, 516, A77, doi:10.1051/0004-6361/200913503, ADS Link
- [119] Bombrun, A., Lindegren, L., Hobbs, D., et al., 2012, Astronomy and Astrophysics, 538, A77, doi:10.1051/0004-6361/201117904
- [120] Bonnarel, F., Fernique, P., Bienaymé, O., et al., 2000, A&AS, 143, 33, doi:10.1051/aas:2000331, ADS Link
- [121] Booch, G., Rumbaugh, J., Jacobson, I., 2005, *The Unified Modeling Language User Guide*, Addison-Wesley Professional, 2nd edn.
- [122] de Boor, C., 2001, *A Practical Guide to Splines*, Springer, revised edn.
- [123] Borncamp, D., Lim, P.L., 2016, *Satellite Detection in Advanced Camera for Surveys/Wide Field Channel Images*, Tech. rep., STScI, ADS Link

- [124] 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
- [125] 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
- [126] 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
- [127] 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
- [128] 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
- [129] 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
- [130] **[DMTN-015]**, Bosch, J., 2016, *Flavors of Coadds*, DMTN-015, URL <https://dmtn-015.lsst.io>, LSST Data Management Technical Note
- [131] **[LDM-513]**, Bosch, J., 2017, *Proposal for Deblender Outputs as Level 2 Data Products*, LDM-513, URL <https://ls.st/LDM-513>
- [132] **[LDM-562]**, Bosch, J., 2017, *Data Management System Level 2 System Requirements*, LDM-562, URL <https://ls.st/LDM-562>
- [133] **[Document-15298]**, Bosch, J., Gee, P., Owen, R., Jurić, M., 2013, *LSST DM S13 Report: Shapre Measurement Plans and Prototypes*, Document-15298, URL <https://ls.st/Document-15298>
- [134] **[DMTR-51]**, Bosch, J., Chiang, H.F., Gower, M., et al., 2017, *LDM-503-02 (HSC Reprocessing) Test Report*, DMTR-51, URL <https://ls.st/DMTR-51>

- [135] Bradley, J., 1727, Royal Society of London Philosophical Transactions Series I, 35, 637, ADS Link
- [136] Bretagnon, P., 1982, A&A, 114, 278, ADS Link
- [137] Bretagnon, P., Francou, G., 1988, A&A, 202, 309, ADS Link
- [138] 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
- [139] 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
- [140] 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
- [141] 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
- [142] 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
- [143] de Bruijne, J., 2004, private communication
- [144] de Bruijne, J., Jordi, C., 2004, URL <http://gaia.am.ub.es/PWG/common/instrumGAI2.html>, private communication
- [145] Brumfit, J., 2002, *Java Coding Standard and Guidelines for the Herschel Common Science System*, Tech. rep., ESTEC, HSCDT/TN009
- [146] Bucciarelli, B., Taff, L.G., Lattanzi, M.G., 1993, J. Statist. Comput. Simul., 48, 29
- [147] Bucciarelli, B., Lattanzi, M.G., Taff, L.G., 1994, ApJ, 433, 831, doi:10.1086/174692, ADS Link
- [148] Budavári, T., Szalay, A.S., 2008, ApJ, 679, 301 (arXiv:0707.1611), doi:10.1086/587156, ADS Link
- [149] 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

- [150] 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>
- [151] Burt, D., 2003, *Gaia Technology Demonstrator: AF CCD DESIGN REPORT*, Tech. rep., e2v, GAIA-E2V-RP-020
- [152] Bus, S.J., Binzel, R.P., 2002, *Icarus*, 158, 106, doi:10.1006/icar.2002.6857, ADS Link
- [153] Bus, S.J., Binzel, R.P., 2002, *Icarus*, 158, 146, doi:10.1006/icar.2002.6856, ADS Link
- [154] Bus, S.J., Binzel, R.P., 2002, *Icarus*, 158, 106
- [155] 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
- [156] **[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>
- [157] **[LDM-538]**, Butler, M., Parsons, J., Gower, M., 2018, *Raw Image Archiving Service Test Specification*, LDM-538, URL <https://ls.st/LDM-538>
- [158] Butler, N.R., Bloom, J.S., 2011, *AJ*, 141, 93 (arXiv:1008.3143), doi:10.1088/0004-6256/141/3/93, ADS Link
- [159] Buton, C., Copin, Y., Aldering, G., et al., 2013, *A&A*, 549, A8 (arXiv:1210.2619), doi:10.1051/0004-6361/201219834, ADS Link
- [160] **[LPM-191]**, Calabrese, D., 2017, *Travel Policy*, LPM-191, URL <https://ls.st/LPM-191>
- [161] Campaign Storage, Campaign Storage, URL <http://campaignstorage.com/>
- [162] Cardelli, J.A., Clayton, G.C., Mathis, J.S., 1989, *ApJ*, 345, 245, doi:10.1086/167900, ADS Link
- [163] **[Document-13760]**, Carlson, E., 2017, *Travel Request Instructions for AURA Employees*, Document-13760, URL <https://ls.st/Document-13760>
- [164] **[Document-13762]**, Carlson, E., 2017, *LSST Travel Summary Report Template*, Document-13762, URL <https://ls.st/Document-13762>
- [165] Carrasco Kind, M., Brunner, R., 2013, TPZ: Trees for Photo-Z, Astrophysics Source Code Library (ascl:1304.011), ADS Link

- [166] Carrasco Kind, M., Brunner, R.J., 2013, MNRAS, 432, 1483 (arXiv:1303.7269), doi:10.1093/mnras/stt574, ADS Link
- [167] Carrasco Kind, M., Brunner, R.J., 2014, MNRAS, 441, 3550 (arXiv:1404.6442), doi:10.1093/mnras/stu827, ADS Link
- [168] Casertano, S., Hut, P., 1985, ApJ, 298, 80, doi:10.1086/163589, ADS Link
- [169] Chamberlin D., B.R., 1974, *SEQL: A Structured English Query Language*, Tech. rep., IBM research laboratory, URL <http://faculty.cse.tamu.edu/yurttas/PL/DBL/docs/sequel-1974.pdf>
- [170] 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
- [171] Chang, F., Dean, J., Ghemawat, S., et al., 2008, ACM Trans. Comput. Syst., 26, 4:1, doi:10.1145/1365815.1365816
- [172] 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>
- [173] **[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>
- [174] Chorier, P., Tribolet, P., Destéfánis, G., 2006, In: *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, vol. 6206 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, 620601, doi:10.1117/12.669128, ADS Link
- [175] 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
- [176] **[LDM-482]**, Ciardi, D., Dubois-Felsmann, G., 2016, *Data Access Policy for the Data Management Prototype DAC*, LDM-482, URL <https://ls.st/LDM-482>
- [177] Ciardi, D.R., 2016, *LSST and Synergies with the VO*, URL <http://dx.doi.org/10.5281/zenodo.44635>,
Talk presented at the US Virtual Observatory Alliance Annual Meeting held at the Annual Astronomical Society meeting 227.

- [178] **[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>
- [179] Claeskens, J.F., Smette, A., Vandenbulcke, L., Surdej, J., 2006, *MNRAS*, 367, 879, doi:10.1111/j.1365-2966.2006.10024.x, ADS Link
- [180] **[LSE-39]**, Claver, C., Dubois-Felsmann, G., 2010, *LSST Document Tree*, LSE-39, URL <https://ls.st/LSE-39>
- [181] **[LSE-79]**, Claver, C., The LSST Commissioning Planning Team, 2017, *System AI&T and Commissioning Plan*, LSE-79, URL <https://ls.st/LSE-79>
- [182] **[LSE-17]**, Claver, C., Angeli, G., Selvy, B., 2016, *Systems Engineering Management Plan*, LSE-17, URL <https://ls.st/LSE-17>
- [183] **[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>
- [184] **[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>
- [185] 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
- [186] 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
- [187] Colangelo, G., 2004, *Gaia System Requirements Document for Technical Assistance & Definition Phase*, Tech. rep., ESA, Gaia-SRC-001, Issue 1.0
- [188] 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>
- [189] **[DMTN-106]**, Comoretto, G., 2019, *DM Release Process*, DMTN-106, URL <http://DMTN-106.lsst.io>
- [190] **[LDM-672]**, Comoretto, G., Guy, L., 2019, *LSST Software Release Management Policy*, LDM-672, URL <http://LDM-672.lsst.io>

- [191] 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
- [192] Connolly, A., 2002, Data Management for the LSST, Invited talk. Paper not submitted to proceedings.
- [193] 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
- [194] 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
- [195] Connolly, A., LSST Team, 2002, In: American Astronomical Society Meeting Abstracts, vol. 34 of Bulletin of the American Astronomical Society, #134.05, ADS Link
- [196] 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
- [197] Corporation, O., 2006, *Installing Oracle RAC 10g on Linux x86*, Tech. rep., Oracle
- [198] 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>
- [199] 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
- [200] Cropper, M., Rosen, S., 2006, Spectra extraction, URL http://wwwhip.obspm.fr/gaia/cu6/workshop_2/CU6_w2_Cropper_extraction.pdf, CU6 Workshop2
- [201] 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

- [202] 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
- [203] 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
- [204] **[Document-11019]**, Crotts, A., 2011, *Standard Candle Relations and Photo-diversity of Type Ia Supernovae*, Document-11019, URL <https://ls.st/Document-11019>
- [205] 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
- [206] 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
- [207] 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
- [208] 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>
- [209] 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
- [210] 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
- [211] de Felice, F., Preti, G., 2006, *Classical and Quantum Gravity*, 23, 5467, doi:10.1088/0264-9381/23/18/001, ADS Link
- [212] 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
- [213] de Felice, F., Lattanzi, M.G., Vecchiato, A., Bernacca, P.L., 1998, *A&A*, 332, 1133, ADS Link
- [214] de Felice, F., Bucciarelli, B., Lattanzi, M.G., Vecchiato, A., 2001, *A&A*, 373, 336, doi:10.1051/0004-6361:20010499, ADS Link

- [215] 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
- [216] 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
- [217] Dean, J., Ghemawat, S., 2008, *Commun. ACM*, 51, 107, doi:10.1145/1327452.1327492
- [218] Dehnen, W., Binney, J.J., 1998, *MNRAS*, 298, 387 (arXiv:astro-ph/9710077), doi:10.1046/j.1365-8711.1998.01600.x, ADS Link
- [219] **[Document-28449]**, Delgado, F., 2018, *Project Response to Telescope & Site Software Review Report 2018-02*, Document-28449, URL <https://ls.st/Document-28449>
- [220] 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
- [221] 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>
- [222] DeWitt, D., 2008, *MapReduce II*, URL <https://web.archive.org/web/20090326224219/http://www.databasecolumn.com:80/2008/01/mapreduce-continued.html>
- [223] **[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>
- [224] Dierckx, P., 1995, *C and Surface Fitting with Splines*, Oxford Science Publications, Oxford University Press, paperback edn.
- [225] Dorigo, A., Elmer, P., Furano, F., Hanushevsky, A., 2005, *WSEAS Transactions on Computers*, 4, 348, URL http://xrootd.org/presentations/xpaper3_cut_journal.pdf
- [226] 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
- [227] 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
- [228] Dowler, P., Rixon, G., Tody, D., 2011, *ArXiv e-prints* (arXiv:1110.0497), ADS Link

- [229] 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](#)
- [230] Dowler P., T.D., Rixon G., 2010, *Table Access Protocol*, Tech. rep., IVOA, REC-TAP-1.0
- [231] Drimmel, R., Spergel, D.N., 2001, *ApJ*, 556, 181, doi:10.1086/321556, [ADS Link](#)
- [232] 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](#)
- [233] **[LSE-75]**, Dubois-Felsmann, G., 2011, *Control System Interfaces between the Telescope and Data Management*, LSE-75, URL <https://ls.st/LSE-75>
- [234] **[LSE-76]**, Dubois-Felsmann, G., 2011, *Infrastructure Interfaces between Summit Facility and Data Management*, LSE-76, URL <https://ls.st/LSE-76>
- [235] **[LSE-77]**, Dubois-Felsmann, G., 2013, *Infrastructure Interfaces between Base Facility and Data Management*, LSE-77, URL <https://ls.st/LSE-77>
- [236] **[LSE-81]**, Dubois-Felsmann, G., 2013, *LSST Science and Project Sizing Inputs*, LSE-81, URL <https://ls.st/LSE-81>
- [237] **[LSE-69]**, Dubois-Felsmann, G., 2014, *Interface between the Camera and Data Management*, LSE-69, URL <https://ls.st/LSE-69>
- [238] **[LSE-130]**, Dubois-Felsmann, G., 2015, *Support-Data Exchanges between Data Management and Camera*, LSE-130, URL <https://ls.st/LSE-130>
- [239] **[LSE-68]**, Dubois-Felsmann, G., 2015, *Camera Data Acquisition Interface*, LSE-68, URL <https://ls.st/LSE-68>
- [240] **[LSE-140]**, Dubois-Felsmann, G., 2016, *Auxiliary Instrumentation Interface between Data Management and Telescope*, LSE-140, URL <https://ls.st/LSE-140>
- [241] **[LDM-540]**, Dubois-Felsmann, G., 2018, *LSST Science Platform Test Specification*, LDM-540, URL <https://ls.st/LDM-540>
- [242] **[LSE-61]**, Dubois-Felsmann, G., Jenness, T., 2018, *LSST Data Management Subsystem Requirements*, LSE-61, URL <https://ls.st/LSE-61>

- [243] **[LSE-82]**, Dubois-Felsmann, G., Lim, K.T., 2013, *Science and Project Sizing Inputs Explanation*, LSE-82, URL <https://ls.st/LSE-82>
- [244] **[LSE-72]**, Dubois-Felsmann, G., Schumacher, G., Selvy, B., 2014, *OCS Command Dictionary for Data Management*, LSE-72, URL <https://ls.st/LSE-72>
- [245] **[LDM-542]**, Dubois-Felsmann, G., Lim, K.T., Wu, X., et al., 2017, *LSST Science Platform Design*, LDM-542, URL <https://ls.st/LDM-542>
- [246] **[LDM-554]**, Dubois-Felsmann, G., Ciardi, D., Mueller, F., Economou, F., 2018, *Science Platform Requirements*, LDM-554, URL <https://ls.st/LDM-554>
- [247] **[LDM-556]**, Dubois-Felsmann, G., Jenness, T., Bosch, J., et al., 2018, *Data Management Middleware Requirements*, LDM-556, URL <https://ls.st/LDM-556>
- [248] **[DMTR-52]**, Dubois-Felsmann, G.P., 2018, *LDM-503-01 (WISE Data Loaded in PDAC) Test Report*, DMTR-52, URL <https://ls.st/DMTR-52>
- [249] 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
- [250] 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
- [251] **[LPM-231]**, Dubois-Felsmann, G.P., Ivezić, Z., Juric, M., 2018, *LSST Data Product Categories*, LPM-231, URL <https://ls.st/LPM-231>
- [252] 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
- [253] EADS Astrium, 2004, *GAIA Point Spread Function and internal straylight evaluation*, Tech. rep., ESA, GAIASYS.NT.00134.T.ASTR
- [254] EADS Astrium, 2010, *GAIA PLM TB/TV test specification: functional and performance tests*, Tech. rep., ESA, GAIA.ASF.SP.PLM.00174
- [255] 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

- [256] 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
- [257] 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
- [258] 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
- [259] **[SQR-018]**, Economou, F., 2017, *Investigations into JupyterLab as a basis for the LSST Science Platform*, SQR-018, URL <https://sqr-018.lsst.io>
- [260] **[SQR-016]**, Economou, F., 2018, *Stack release playbook*, SQR-016, URL <https://sqr-016.lsst.io>
- [261] **[LDM-522]**, Economou, F., Wood-Vasey, M., 2017, *DM Science Quality Data Assurance System Conceptual Design*, LDM-522, URL <https://ls.st/LDM-522>
- [262] **[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>
- [263] **[DMTN-109]**, Egg, S., 2019, *LSST discovery estimates for Solar System Objects*, DMTN-109, URL <http://dmtn-109.lsst.io>
- [264] EMC, 2011, *Greenplum Database 4.1 Administrator Guide*, Tech. rep., EMC Corporation, URL <http://www.greenplum.com/community/downloads/documentation/>
- [265] EMC, 2011, *Greenplum Database 4.1 Installation Guide*, Tech. rep., EMC Corporation, URL <http://www.greenplum.com/community/downloads/documentation/>
- [266] **[LSE-89]**, Emmons, B., Bauer, A., 2018, *Education and Public Outreach Requirements*, LSE-89, URL <https://ls.st/LSE-89>
- [267] ESA, 1997, *The Hipparcos and Tycho Catalogues*, ESA, ESA SP-1200
- [268] ESA, 2000, *GAIA — Composition, Formation and Evolution of the Galaxy*, Tech. rep., ESA, Concept and Technology Study Report, ESA-SCI(2000)4

- [269] **[ESA/SPC(2009)6]**, ESA, 2009, *Licensing of Data Processing Software for the Science Programme*,
ESA/SPC(2009)6
- [270] **[ECSS-M-30-01A]**, ESA Publications Division, 1999, *Organization and Conduct of Reviews*,
ECSS-M-30-01A
- [271] **[ECSS-M-00-02A]**, ESA Publications Division, 2000, *Project Organisation*,
ECSS-M-00-02A
- [272] **[ECSS-E-10-6a]**, ESA Publications Division, 2003, *Functional and Technical Specifications*,
ECSS-E-10 part 6a
- [273] **[ECSS-Q-80B]**, ESA Publications Division, 2003, *Software Product Assurance*,
ECSS-Q-80B
- [274] **[ECSS-M-10B]**, ESA Publications Division, 2003, *Project Breakdown Structures*,
ECSS-M-10B
- [275] **[ECSS-M-20B]**, ESA Publications Division, 2003, *Project Organisation*,
ECSS-M-20B
- [276] **[ECSS-M-30B]**, ESA Publications Division, 2003, *Project Phasing and Planning*,
ECSS-M-30B
- [277] **[ECSS-M-40B]**, ESA Publications Division, 2003, *Space Project Management - configuration management*,
ECSS-M-40B
- [278] **[ECSS-M-50B]**, ESA Publications Division, 2003, *Space Project Management - information/documentation management*,
ECSS-M-50B Draft 8
- [279] **[ECSS-E-40-1B]**, ESA Publications Division, 2003, *Space engineering - Software - Part 1: Principles and requirements*,
ECSS-E-40 Part 1B
- [280] **[ECSS-E-40-2B]**, ESA Publications Division, 2005, *Space engineering - Software - Part 2: Document Requirements Definitions*,
ECSS-E-40 Part 2B

- [281] **[ECSS-M-ST-60C]**, ESA Publications Division, 2008, *Space project management - Cost and schedule management*,
ECSS-M-ST-60C
- [282] **[ECSS-M-ST-10C]**, ESA Publications Division, 2008, *Space project management - Project planning and implementation*,
ECSS-M-ST-10C
- [283] 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
- [284] Eyer, L., 1998, Ph.D. Thesis, ADS Link
- [285] Eyer, L., 2002, *Acta Astronomica*, 52, 241 (arXiv:astro-ph/0206074), ADS Link
- [286] 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
- [287] Eyer, L., 2006, In: Sterken, C., Aerts, C. (eds.) *Astronomical Society of the Pacific Conference Series*, 15–+, ADS Link
- [288] Eyer, L., 2006, *Memorie della Societa Astronomica Italiana*, 77, 549
(arXiv:astro-ph/0511460), ADS Link
- [289] 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
- [290] Eyer, L., Blake, C., 2005, *MNRAS*, 358, 30 (arXiv:astro-ph/0406333), doi:10.1111/j.1365-
2966.2005.08651.x, ADS Link
- [291] 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
- [292] Eyer, L., Grenon, M., 1997, In: ESA SP-402: *Hipparcos - Venice '97*, 467–472, ADS Link
- [293] Eyer, L., Mignard, F., 2005, *MNRAS*, 361, 1136, doi:10.1111/j.1365-2966.2005.09266.x,
ADS Link
- [294] Fabricius, C., Torra, J., *GDAAS Algorithm Preparation Guidelines*,
CCB-GDAAS-002

- [295] **[SQR-009]**, Fausti, A., 2017, *The SQuaSH metrics dashboard*, SQR-009, URL <https://sqr-009.lsst.io>
- [296] **[Publication-142]**, Ferguson, H.C., 2011, *Science White Paper for LSST Deep-Drilling Field Observations: LSST Deep Drilling for Galaxies*, Publication-142, URL <https://ls.st/Publication-142>
- [297] Fernandez, M.M., 2005, *Gaia TT&C Subsystem Analysis*, Tech. rep., ESA, Note prepared at request of Project team
- [298] Few, S., 2013, *Information Dashboard Design*, Analytics Press, 2 edn.
- [299] 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
- [300] Filippenko, A.V., 1982, PASP, 94, 715, doi:10.1086/131052, ADS Link
- [301] **[DMTN-057]**, Findeisen, K., 2017, *Integrating Verification Metrics into the LSST DM Stack*, DMTN-057, URL <https://dmtn-057.lsst.io>, LSST Data Management Technical Note
- [302] **[DMTN-098]**, Findeisen, K., 2018, *Metrics Measurement Framework Design*, DMTN-098, URL <https://dmtn-098.lsst.io>, LSST Data Management Technical Note
- [303] 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/>
- [304] Fornies-Marquina, J., Letosa, J., García-Gracia, M., Artacho, J., 1997, IEEE transactions on magnetics, 33, 1456
- [305] 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
- [306] 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
- [307] Freemon, D.M., 2013, ArXiv e-prints (arXiv:1303.7467), ADS Link
- [308] Freemon, D.M., 2014, ArXiv e-prints (arXiv:1410.1939), ADS Link

- [309] Freemon, D.M., Becla, J., Dubois-Felsmann, G.P., et al., 2010, In: *Astronomical Data Analysis Software and Systems XX*, LSST Corporation
- [310] 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
- [311] **[LDM-143]**, Freemon, M., Pietrowicz, S., 2013, *Site Specific Infrastructure Estimation Explanation*, LDM-143, URL <https://ls.st/LDM-143>
- [312] **[LDM-144]**, Freemon, M., Pietrowicz, S., Alt, J., 2016, *Site Specific Infrastructure Estimation Model*, LDM-144, URL <https://ls.st/LDM-144>
- [313] Furnell, R., 2005, *Gaia Space/Ground Interface Control Document Volume 1: RF Interface*, Tech. rep., ESA/ESOC, GAIA-ESC-ICD-515
- [314] Furnell, R., 2005, *Gaia Space/Ground Interface Control Document Volume 2: Generic Packet Structure*, Tech. rep., ESA/ESOC, GAIA-ESC-ICD-516
- [315] 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
- [316] Gaia Acronyms, URL <http://www.rssd.esa.int/Ageneral/Projects/GAIA/paramdb/glossary.txt>, Gaia Acronyms List
- [317] Gaia Collaboration, Brown, A.G.A., Vallenari, A., et al., 2016, *A&A*, 595, A2 (arXiv:1609.04172), doi:10.1051/0004-6361/201629512
- [318] 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
- [319] Gamma, E., Helm, R., Johnson, R., Vlissides, J., 1994, *Design Patterns: Elements of Reusable Object-Oriented Software*, Addison-Wesley Professional Computing Series
- [320] 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

- [321] 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
- [322] **[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>
- [323] **[LPM-18]**, Gessner, C., Krabbendam, V., 2014, *Safety Policy*, LPM-18, URL <https://ls.st/LPM-18>
- [324] Gibson, R., 2011, In: Very Wide Field Surveys in the Light of Astro2010, University of Washington, Space Telescope Science Institute
- [325] 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
- [326] Gieleesen, 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
- [327] **[Document-24920]**, Gill, R., 2018, *LSST COMMUNICATIONS CODE OF CONDUCT*, Document-24920, URL <https://ls.st/Document-24920>
- [328] **[Document-28973]**, Gill, R., 2018, *LSST MEETINGS CODE OF CONDUCT*, Document-28973, URL <https://ls.st/Document-28973>
- [329] 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
- [330] 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
- [331] Globus, Globus Transfer API Documentation, URL <https://docs.globus.org/api/transfer/>

- [332] 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
- [333] Gomez, A.E., Grenier, S., Udry, S., et al., 1997, In: *ESA SP-402: Hipparcos - Venice '97*, 621–624, ADS Link
- [334] 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
- [335] Górski, K.M., Hivon, E., Banday, A.J., et al., 2005, *ApJ*, 622, 759 (arXiv:astro-ph/0409513), doi:10.1086/427976
- [336] Górski, K.M., Hivon, E., Banday, A.J., et al., 2005, *ApJ*, 622, 759 (arXiv:astro-ph/0409513), doi:10.1086/427976, ADS Link
- [337] Gosling, J., Joy, B., Steele, G., 2000, *The Java Language Specification*, Addison-Wesley, 2nd edn.
- [338] Gould, A., 2013, ArXiv e-prints (arXiv:1304.3455), ADS Link
- [339] **[DMTN-059]**, Gower, M., 2017, *Batch Processing Facade Prototype 0.1*, DMTN-059, URL <https://dmtn-059.lsst.io>, LSST Data Management Technical Note
- [340] **[LDM-635]**, Gower, M., Butler, M., Lim, K.T., 2018, *Data Management Data Backbone Services Requirements*, LDM-635, URL <https://lsst.org/LDM-635>
- [341] GPD, URL <http://www.rssd.esa.int/Gaia/paramdb>, Gaia Parameter Database
- [342] GPFS, IBM Spectrum Scale, URL <https://www.ibm.com/us-en/marketplace/scale-out-file-and-object-storage>
- [343] **[DMTN-065]**, Graham, M., Jurić, M., Lim, K.T., Bellm, E., 2018, *Data Management and LSST Special Programs*, DMTN-065, URL <https://dmtn-065.lsst.io>, LSST Data Management Technical Note
- [344] Graham, M.J., Djorgovski, S.G., Donalek, C., et al., 2012, In: Peck, A.B., Seaman, R.L., Comerón, 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

- [345] **[DMTN-049]**, Graham, M.L., 2018, *LSST DRP (Level 2) Catalog Photometric Redshifts*, DMTN-049, URL <https://dmtn-049.lsst.io>, LSST Data Management Technical Note
- [346] **[DMTN-102]**, Graham, M.L., Bellm, E.C., Guy, L.P., Dubois-Felsmann, C.T.S.G.P., the DM System Science Team, 2019, *LSST Alerts: Key Numbers*, DMTN-102, URL <https://dmtn-102.lsst.io>, LSST Data Management Technical Note
- [347] **[DMTN-107]**, Graham, M.L., Bellm, E.C., Slater, C.T., the DM System Science Team, 2019, *Options for Alert Production in LSST Operations Year 1*, DMTN-107, URL <https://dmtn-107.lsst.io>, LSST Data Management Technical Note
- [348] Graham M., R.G., Morris D., 2009, *VOSpace specification*, Tech. rep., IVOA, REC-VOSpace-1.15
- [349] Graham M., R.G., Morris D., 2011, *VOSpace specification*, Tech. rep., IVOA, REC-VOSpace-2.0
- [350] 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/>
- [351] Gray, J., Chong, W., Barclay, T., Szalay, A., vandenBerg, J., 2002, arXiv e-prints, cs/0208011 (arXiv:cs/0208011), ADS Link
- [352] 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
- [353] Greenbaum, A., 1997, *Iterative Methods for Solving Linear Systems*, SIAM
- [354] Gregory, P.C., 2010, *Bayesian Logical Data Analysis for the Physical Sciences*, Cambridge University Press, 1 edn.
- [355] Greisen, E.W., Calabretta, M.R., 2002, *A&A*, 395, 1061 (arXiv:astro-ph/0207407), doi:10.1051/0004-6361:20021326
- [356] 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>

- [357] 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
- [358] Grossman, R., Gu, Y., Hong, X., et al., 2004, *Future Generation Computer Systems*, 21, 501, doi:10.1016/j.future.2004.10.007
- [359] Grün, E., Zook, H.A., Fechtig, H., Giese, R., 1985, *Icarus*, 62, 244, doi:10.1016/0019-1035(85)90121-6, ADS Link
- [360] Guerrier, A., , *Software Design Document for Wavelength Calibration*, Tech. rep., ESA, GAIA-C6-TN-OPM-AG-003-1
- [361] Guerrier, A., , *Software Design Document for Apply Calibration*, Tech. rep., ESA, GAIA-C6-SP-OPM-AG-004-1
- [362] Gunn, A.G., Hall, J.C., Lockwood, G.W., Doyle, J.G., 1996, *A&A*, 305, 146, ADS Link
- [363] **[LDM-639]**, Guy, L., 2018, *DM Acceptance Test Specification*, LDM-639, URL <https://lsst/LDM-639>
- [364] 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>
- [365] 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>
- [366] 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>
- [367] Handy, C., 1993, *Understanding organizations*, Penguin Books, London, England New York, N.Y., USA
- [368] Hankins, T.L., 1980, *Sir William Rowan Hamilton*, The Johns Hopkins University Press
- [369] 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>
- [370] Harrison, D.L., 2011, *Experimental Astronomy*, 31, 157 (arXiv:1107.0210), doi:10.1007/s10686-011-9240-7, ADS Link

- [371] Harrison P., R.G., 2010, *Universal Worker Service Pattern*, Tech. rep., IVOA, REC-UWS-1.0
- [372] Hassan, A., Fluke, C.J., 2011, ArXiv e-prints (arXiv:1102.5123), ADS Link
- [373] Haywood, M., Robin, A.C., Creze, M., 1997, A&A, 320, 428, ADS Link
- [374] Hechler, M., 2004, ESOC, private communication
- [375] Hechler, M., 2006, *GAIA Consolidated Report on Mission Analysis (CReMA)*, Tech. rep., ESA, European Space Operations Centre, GAIA-ESC-RP-0001, Issue 2.0
- [376] Hees, A., Hestroffer, D., Le Poncin-Lafitte, C., David, P., 2015, ArXiv e-prints (arXiv:1509.06868), ADS Link
- [377] Helmi, A., de Zeeuw, P.T., 2000, MNRAS, 319, 657 (arXiv:astro-ph/0007166), ADS Link
- [378] Hildebrandt, H., Arnouts, S., Capak, P., et al., 2010, A&A, 523, A31 (arXiv:1008.0658), doi:10.1051/0004-6361/201014885, ADS Link
- [379] 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
- [380] Hoff, T., 2008, Skype Plans For PostgreSQL To Scale To 1 Billion Users, URL <http://highscalability.com/skype-plans-postgresql-scale-1-billion-users>
- [381] 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.
- [382] Høg, E., Bernacca, P.L., Emiliani, L., 1997, In: Perryman, M., Bernacca, P. (eds.) Proc. of Hipparcos Venice 97, xxvii–xxxv
- [383] Høg, E., Fabricius, C., Makarov, V.V., et al., 2000, A&A, 355, L27, ADS Link
- [384] 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

- [385] 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
- [386] Hohenkerk, C., Sinclair, A., 1985, NAO Technical Note, 63, URL <http://astro.ukho.gov.uk/data/tn/naotn63.pdf>
- [387] Holl, B., Lindegren, L., 2012, A&A, 543, A14, doi:10.1051/0004-6361/201218807, ADS Link
- [388] 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
- [389] Holl, B., Lindegren, L., Hobbs, D., 2012, A&A, 543, A15, doi:10.1051/0004-6361/201218808, ADS Link
- [390] Holland, S.E., Groom, D.E., Palaio, N.P., Stover, R.J., Wei, M., 2003, IEEE transactions on electron devices, 50, 225
- [391] Holman, M.J., Payne, M.J., Blankley, P., Janssen, R., Kuindersma, S., 2018, AJ, 156, 135, doi:10.3847/1538-3881/aad69a, ADS Link
- [392] Hough, P.V.C., 1962, Method and means for recognizing complex patterns, URL <https://www.google.com/patents/US3069654>, US Patent 3,069,654
- [393] HPSS, HPSS – High Performance Storage Systems, URL <http://hpss-collaboration.org/>
- [394] HTCondor, HTCondor, URL <https://research.cs.wisc.edu/htcondor/index.html>
- [395] Huckle, H., 2007, *Continuum Normalisation*, Tech. rep., ESA, GAIA-C6-SP-MSSL-HEH-001-D
- [396] Huff, E., Mandelbaum, R., 2017, ArXiv e-prints (arXiv:1702.02600), ADS Link
- [397] IAU, 2001, Information Bulletin, 88, (errata in IAU Information Bulletin, 89)
- [398] Idreos, S., Groffen, F., Nes, N., et al., 2012, IEEE Data Eng. Bull., 35, 40, URL <http://sites.computer.org/debull/A12mar/monetdb.pdf>
- [399] 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

- [400] **[LTS-487]**, Ingraham, P., 2017, *Auxiliary Telescope Spectrograph Statement of Work (SOW)*, LTS-487, URL <https://ls.st/LTS-487>
- [401] **[LTS-488]**, Ingraham, P., 2017, *Auxiliary Telescope Spectrograph Specifications Document*, LTS-488, URL <https://ls.st/LTS-488>
- [402] **[LSE-379]**, Ingraham, P., 2018, *Auxiliary Telescope Concept of Operations*, LSE-379, URL <https://ls.st/LSE-379>
- [403] Intersystems, 2008, Using Cache Globals, URL <http://docs.intersystems.com/documentation/cache/20082/pdfs/GGBL.pdf>
- [404] 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
- [405] 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
- [406] Ivezić, Z., 2016, The impact of photo-z on LSST science requirements, URL <https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbXxwaXR0cGhvdG96d29ya3Nob3AyMDE2fGd40jMwZDZmNWEwYjhhMmY3Zjk>, Presented at the LSST Photo-z Workshop, Pittsburgh, April 5, 2016
- [407] **[Document-27758]**, Ivezić, Ž., LSST Project Science Team, 2018, *On the choice of LSST flux units*, Document-27758, URL <https://ls.st/Document-27758>
- [408] **[LPM-17]**, Ivezić, Ž., The LSST Science Collaboration, 2018, *LSST Science Requirements Document*, LPM-17, URL <https://ls.st/LPM-17>
- [409] Ivezić, Ž., Smith, J.A., Miknaitis, G., et al., 2007, *AJ*, 134, 973 (arXiv:astro-ph/0703157), doi:10.1086/519976, ADS Link
- [410] 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
- [411] 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

- [412] Ivezić, Ž., Connolly, A.J., VanderPlas, J.T., Gray, A., 2014, *Statistics, Data Mining, and Machine Learning in Astronomy*, Princeton University Press, ADS Link
- [413] Ivezić, Z., et al., 2008, ArXiv e-prints (arXiv:0805.2366), ADS Link
- [414] 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
- [415] 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.
- [416] Jacobson, I., Booch, G., Rumbaugh, J., 1999, *The Unified Software Development Process*, Addison-Wesley Professional, 1st edn.
- [417] **[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>
- [418] 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
- [419] Janesick, J.R., 2001, *Scientific charge-coupled devices*, SPIE Optical Engineering Press, ADS Link
- [420] 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
- [421] Jee, M.J., Tyson, J.A., 2011, PASP, 123, 596 (arXiv:1011.1913), doi:10.1086/660137, ADS Link
- [422] 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)
- [423] 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
- [424] 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
- [425] Jenness, T., 2016, In: Python in Astronomy 2016, 27, doi:10.5281/zenodo.48406, ADS Link
- [426] 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
- [427] **[LDM-512]**, Jenness, T., O'Mullane, W., 2017, *Data Management Risk Assessment Process*, LDM-512, URL <https://ls.st/LDM-512>
- [428] **[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.
- [429] 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
- [430] **[LDM-592]**, Jenness, T., Bosch, J., Gower, M., et al., 2017, *Data Access Use Cases*, LDM-592, URL <https://ls.st/LDM-592>
- [431] Jenness, T., Bosch, J.F., Schellart, P., et al., 2018, arXiv e-prints, arXiv:1812.08085 (arXiv:1812.08085), ADS Link
- [432] 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
- [433] 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
- [434] **[LDM-643]**, Johnson, M., Gruendl, R., 2019, *Proposed DM OPS Rehearsals*, LDM-643, URL <https://ls.st/LDM-643>
- [435] 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

- [436] **[LSE-180]**, Jones, L., 2013, *Level 2 Photometric Calibration for the LSST Survey*, LSE-180, URL <https://ls.st/LSE-180>
- [437] 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
- [438] 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
- [439] Jorden, P.R., Jordan, D., Jerram, P.A., Pratlong, 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
- [440] 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
- [441] 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
- [442] 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
- [443] 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
- [444] Juric, M., 2013, LSST: Introduction and Data Management Requirements, URL <http://wiki.ivoa.net/internal/IVOA/InterOpMay2013/juric.pdf>, Presented at the IVOA Interoperability Meeting, Heidelberg, Germany
- [445] 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
- [446] 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

- [447] 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
- [448] 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.
- [449] 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
- [450] 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
- [451] 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
- [452] 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
- [453] 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-LSSEurope2-DataProducts-4.pptx>,
Presented on 2016-06-20 at the LSST@Europe2 conference held in Serbia
- [454] **[LDM-582]**, Juric, M., Gruendl, R., 2017, *Lossy Compression Working Group Charge*, LDM-582, URL <https://ls.st/LDM-582>
- [455] **[DMTN-087]**, Juric, M., Jones, L., 2018, *Proposed Modifications to Solar System Processing and Data Products*, DMTN-087, URL <https://dmtn-087.lsst.io>,
LSST Data Management Technical Note

- [456] 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.
- [457] Juric, M., Tyson, T., 2015, Highlights of Astronomy, 16, 675, doi:10.1017/S174392131401285X, ADS Link
- [458] 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
- [459] **[LDM-134]**, Jurić, M., Allsman, R., Kantor, J., 2013, *Data Management Applications UML Use Case Model*, LDM-134, URL <https://ls.st/LDM-134>
- [460] 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
- [461] **[LDM-133]**, Jurić, M., Lim, K.T., Kantor, J., 2013, *Data Management UML Domain Model*, LDM-133, URL <https://ls.st/LDM-133>
- [462] Juric, M., Jones, L., Axelrod, T., Ivezić, Z., 2015, IAU General Assembly, 22, 56348, ADS Link
- [463] **[DMTN-035]**, Jurić, M., Becker, A., Shaw, R., Krughoff, K.S., Kantor, J., 2016, *Winter 2013 LSST DM Data Challenge Release Notes*, DMTN-035, URL <https://dmtn-035.lsst.io>, LSST Data Management Technical Note
- [464] **[LSE-319]**, Jurić, M., Ciardi, D., Dubois-Felsmann, G., 2017, *LSST Science Platform Vision Document*, LSE-319, URL <https://ls.st/LSE-319>
- [465] 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)
- [466] **[LSE-163]**, Jurić, M., et al., 2017, *LSST Data Products Definition Document*, LSE-163, URL <https://ls.st/LSE-163>
- [467] 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
- [468] Kane, T.R., Likins, P.W., Levinson, D.A., 1983, *Spacecraft dynamics*, McGraw Hill Book Company, 1 edn.

- [469] Kantor, J., 2008, *Lsst data management: Making petascale data accessible*, New Astronomy: The Data Challenge, Rio de Janeiro, Brazil
- [470] Kantor, J., 2008, *Lsst network requirements*, Brazilian Symposium of Computer Networks and Distributed Systems
- [471] 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
- [472] Kantor, J., 2008, *Lsst processing: Challenges and solutions*, PUCÓN SYMPOSIUM 2008, Fifth AccessNova Forum: Ubiquitous Networks in Advanced Applications
- [473] Kantor, J., 2008, *Lsst overview*, PUCÓN SYMPOSIUM 2008, Fifth AccessNova Forum: Ubiquitous Networks in Advanced Applications
- [474] 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
- [475] **[Document-26217]**, Kantor, J., 2010, *Data Challenge 3b Performance Test 1.1*, Document-26217, URL <https://ls.st/Document-26217>
- [476] 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
- [477] 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
- [478] **[LDM-142]**, Kantor, J., 2017, *Network Sizing Model*, LDM-142, URL <https://ls.st/LDM-142>
- [479] **[LSE-309]**, Kantor, J., 2017, *Summit to Base Information Technology and Communication (ITC) Design*, LSE-309, URL <https://ls.st/LSE-309>
- [480] **[Document-28547]**, Kantor, J., 2018, *LSST Network Bandwidth Tests between Chile and the United States*, Document-28547, URL <https://ls.st/Document-28547>

- [481] 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
- [482] 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
- [483] 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>
- [484] **[Document-7025]**, Kantor, J., Krabbendam, V., 2011, *DM Risk Register*, Document-7025, URL <https://ls.st/Document-7025>
- [485] **[LPM-81]**, Kantor, J., Krabbendam, V., 2015, *Cost Estimating Plan*, LPM-81, URL <https://ls.st/LPM-81>
- [486] 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
- [487] **[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>
- [488] **[LDM-138]**, Kantor, J., Axelrod, T., Lim, K.T., 2013, *Data Management Compute Sizing Model*, LDM-138, URL <https://ls.st/LDM-138>
- [489] **[LDM-240]**, Kantor, J., Jurić, M., Lim, K.T., 2016, *Data Management Releases*, LDM-240, URL <https://ls.st/LDM-240>
- [490] 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
- [491] 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

- [492] 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
- [493] Kantor, J.P., 2006, In: Lewis, H., Bridger, A. (eds.) Advanced Software and Control for Astronomy, vol. 6274 of Proc. SPIE, 0, doi:10.1117/12.671685, ADS Link
- [494] 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
- [495] Katz, D., 2006, Gaia - RVS: DPAC and CU6, URL http://wwwhip.obspm.fr/gaia/cu6/workshop_2/CU6_w2_Katz_intro.pdf,
CU6 Workshop2
- [496] Kerekes, G., Budavári, T., Csabai, I., Connolly, A.J., Szalay, A.S., 2010, ApJ, 719, 59 (arXiv:1006.2096), doi:10.1088/0004-637X/719/1/59, ADS Link
- [497] **[Publication-144]**, Kessler, R., et al., 2011, *Science White Paper for LSST Deep-Drilling Field Observations: Supernova Light Curves*, Publication-144, URL <https://lsst/Publication-144>
- [498] Kirsch, N., 2012, WD Red 3TB NAS Hard Drive Review, URL <http://www.legitreviews.com/article/2092/3/>
- [499] 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
- [500] Klioner, S.A., 2001, ArXiv Astrophysics e-prints (arXiv:astro-ph/0107457), ADS Link
- [501] Klioner, S.A., 2003, AJ, 125, 1580, ADS Link
- [502] Klioner, S.A., 2004, Phys. Rev. D, 69, 124001 (arXiv:astro-ph/0311540), doi:10.1103/PhysRevD.69.124001, ADS Link
- [503] 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
- [504] Klioner, S.A., 2008, A&A, 478, 951, doi:10.1051/0004-6361:20077786, ADS Link

- [505] 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
- [506] Klioner, S.A., Peip, M., 2003, *A&A*, 410, 1063 (arXiv:astro-ph/0305204), doi:10.1051/0004-6361:20031283, ADS Link
- [507] Klioner, S.A., Soffel, M.H., 2000, *Phys. Rev. D*, 62, 024019 (arXiv:gr-qc/9906123), ADS Link
- [508] 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
- [509] Klioner, S.A., Zschocke, S., Soffel, M.H., Butkevich, A.G., 2010, *ArXiv e-prints* (arXiv:1002.5016), ADS Link
- [510] 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
- [511] 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
- [512] Kopeikin, S., Vlasov, I., 2004, *Phys. Rep.*, 400, 209 (arXiv:gr-qc/0403068), doi:10.1016/j.physrep.2004.08.004, ADS Link
- [513] Koppelman, H., Helmi, A., Veljanoski, J., 2018, *ApJ*, 860, L11, doi:10.3847/2041-8213/aac882, ADS Link
- [514] Korn, G.A., Korn, T.M., 1961, *Mathematical handbook for scientists and engineers*, McGraw Hill Book Company, 1 edn.
- [515] Kovalevsky, J., 1998, *ARA&A*, 36, 99, doi:10.1146/annurev.astro.36.1.99, ADS Link
- [516] Kovalevsky, J., Lindegren, L., Froeschle, M., et al., 1995, *A&A*, 304, 34, ADS Link
- [517] **[DMTN-025]**, Kowalik, M., Chiang, H.F., Daues, G., Kooper, R., 2016, *A survey of workflow management systems*, DMTN-025, URL <https://dmtn-025.lsst.io>, LSST Data Management Technical Note

- [518] **[LDM-633]**, Kowalik, M., Gower, M., Kooper, R., 2019, *Offline Batch Production Services Use Cases*, LDM-633, URL <https://ls.st/LDM-633>
- [519] **[LDM-636]**, Kowalik, M., Gower, M., Kooper, R., 2019, *Batch Production Service Requirements*, LDM-636, URL <https://ls.st/LDM-636>
- [520] **[LPM-72]**, Krabbendam, V., 2015, *Scope Options*, LPM-72, URL <https://ls.st/LPM-72>
- [521] **[LPM-20]**, Krabbendam, V., Selvy, B., 2015, *Risk & Opportunity Management Plan*, LPM-20, URL <https://ls.st/LPM-20>
- [522] **[EISD-EPNS-00003]**, Krall, C., 2004, *IMPLEMENTATION OF THE ESA NETWORK SECURITY POLICY*, EISD-EPNS-00003
- [523] Krisciunas, K., Schaefer, B.E., 1991, PASP, 103, 1033, doi:10.1086/132921, ADS Link
- [524] Kruchten, P., 2003, *The Rational Unified Process: An Introduction*, Addison-Wesley Professional, 3rd edn.
- [525] Krughoff, K.S., 2014, Image differencing for lsst, URL <http://dx.doi.org/10.5281/zenodo.45300>, ZTF-LSST Joint Meeting November 12th 2014
- [526] 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>
- [527] 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
- [528] 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
- [529] 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
- [530] 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

- [531] Lallo, M. and Petro, L., 1999, *Bidirectional reflectance distribution function for the NGST mirrors*, Tech. rep., Space Telescope Science Institute
- [532] **[LSE-78]**, Lambert, R., Kantor, J., Huffer, M., et al., 2017, *LSST Observatory Network Design*, LSE-78, URL <https://ls.st/LSE-78>
- [533] Lammers, U., ,
unpublished results - see also http://www.rssd.esa.int/\discretionary{-}{-}{GAIA/\discretionary{-}{-}{PoW_ground_station_visibility.html
- [534] Lammers, U., ,
unpublished results
- [535] 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
- [536] Larman, C., Basili, V.R., 2003, *Computer*, 36, 47, doi:10.1109/MC.2003.1204375
- [537] Lasker, B., Lattanzi, M., McLean, B., et al., 2008, *The Astronomical Journal*, 136, doi:10.1088/0004-6256/136/2/735, ADS Link
- [538] Lattanzi, M., Drimmel, R., 2003,
private communication
- [539] Lattanzi, M.G., Spagna, A., Sozzetti, A., Casertano, S., 2000, *MNRAS*, 317, 211 (arXiv:astro-ph/0005024), ADS Link
- [540] 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
- [541] Lazio, J.W., Kimball, A., Barger, A.J., et al., 2014, *PASP*, 126, 196 (arXiv:1401.0716), doi:10.1086/675262, ADS Link
- [542] 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
- [543] van Leeuwen, F., 1997, *The Hipparcos Mission*, Springer, *Space Science Reviews*, Vol.81 edn.
- [544] van Leeuwen, F., 2007, *Hipparcos, the New Reduction of the Raw Data*, Springer, *Astrophysics and Space Science Library*. Vol. 350 edn.

- [545] Leistedt, B., Hogg, D.W., 2017, *ApJ*, 838, 5 (arXiv:1612.00847), doi:10.3847/1538-4357/aa6332, ADS Link
- [546] Lejeune, T., Cuisinier, F., Buser, R., 1998, *A&AS*, 130, 65 (arXiv:astro-ph/9710350), ADS Link
- [547] Lenhardt, H., 2003, *GIS implementation in GDAAS2: Detailed Geometrical Calibration*, Tech. rep., ARI, GAIA-ARI-HL-001
- [548] **[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/l1ink/livelink/fetch/-415780/495310/1051419/Sw_Conf_Mng_Plan_v2-0.pdf?nodeid=2942288&vernum=-2
- [549] 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
- [550] Lim, K.T., 2007, Preparing for scores of petabytes, IEEE Mass Storage Symposium, San Diego, CA, September 26, 2007
- [551] Lim, K.T., 2008, Lsst and scidb, Stanford HPC Conference, Stanford, CA, USA, August 28, 2008
- [552] Lim, K.T., 2008, Cyberinfrastructure lessons from Lsst data management, iPlant Workshop (remote presentation), December 16, 2008
- [553] Lim, K.T., 2008, The Lsst data management system, Talk at Keck Observatory, December 2, 2008
- [554] 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
- [555] Lim, K.T., 2011, Lsst applications and middleware, Talk at Fermilab, May 12, 2011
- [556] Lim, K.T., 2012, The Lsst database: What to expect, AAS Splinter Meeting, Austin TX, January 8, 2012

- [557] 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
- [558] **[Document-15097]**, Lim, K.T., 2013, *LSST Data Challenge Report: Summer 2013*, Document-15097, URL <https://ls.st/Document-15097>
- [559] 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
- [560] 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
- [561] 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
- [562] **[LSE-400]**, Lim, K.T., 2019, *Header Service Interface*, LSE-400, URL <https://lse-400.lsst.io>
- [563] **[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>
- [564] **[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>
- [565] **[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>
- [566] **[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>
- [567] **[DMTN-114]**, Lim, K.T., Guy, L., Chiang, H.F., 2019, *LSST + Amazon Web Services Proof of Concept*, DMTN-114, URL <http://dmtn-114.lsst.io>
- [568] 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

- [569] Lindegren, L., 1978, In: Prochazka, F.V., Tucker, R.H. (eds.) IAU Colloq. 48: Modern Astrometry, 197–217, ADS Link
- [570] Lindegren, L., 1983, *Pseudosolution and pseudocovariances of least-squares problems with known null space*, Tech. rep., Lund Observatory, NDAC/LO/018, Hipparcos NDAC
- [571] Lindegren, L., 1995, A&A, 304, 61, ADS Link
- [572] 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
- [573] Lindegren, L., 2009, Proceedings of the International Astronomical Union, 5, 296, doi:10.1017/S1743921309990548
- [574] Lindegren, L., 2010, ISSI Scientific Reports Series, 9, 279, ADS Link
- [575] Lindegren, L., et al, M.P., 1993, *GAIA : Global Astrometric Interferometer for Astrophysics*, Tech. rep., Lund, URL http://www.astro.lu.se/%7Elennart/Astrometry/gaia_proposal.PDF
- [576] Lindegren, L., Bastian, U., 2011, In: EAS Publications Series, vol. 45 of EAS Publications Series, 109–114, doi:10.1051/eas/1045018, ADS Link
- [577] 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
- [578] 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
- [579] 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
- [580] 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

- [581] Lindegren, L., Lammers, U., Hobbs, D., et al., 2012, *A&A*, 538, A78 (arXiv:1112.4139), doi:10.1051/0004-6361/201117905, ADS Link
- [582] Lindegren, L., Lammers, U., Hobbs, D., et al., 2012, *Astronomy and Astrophysics*, 538, A78, doi:10.1051/0004-6361/201117905
- [583] 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
- [584] LINPACK, URL <http://www.top500.org/lists/linpack.php>, Linpack standard numerical benchmark
- [585] Lock, D., 2000, *Project Phasing and Planning*, Gower, 7 edn.
- [586] **[LPM-98]**, Long, K.E., 2016, *LSST Project Controls System Description*, LPM-98, URL <https://ls.st/LPM-98>
- [587] López, P.P., Luri, X., Serraller, I., 2003, *Java Code Conventions*, Tech. rep., GMV/UB, GMV-GDAAS2-SCG-004
- [588] **[LSE-209]**, Lotz, P., 2016, *Software Component to OCS Interface*, LSE-209, URL <https://ls.st/LSE-209>
- [589] **[LSE-70]**, Lotz, P., 2016, *System Communication Protocol Interface*, LSE-70, URL <https://ls.st/LSE-70>
- [590] 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
- [591] LSST Data Management, LSST DM Developer Guide, URL <https://developer.lsst.io/>
- [592] **[Report-241]**, LSST Project Science Team, 2015, *Camera Mixed Focal Plane Option*, Report-241, URL <https://ls.st/Report-241>
- [593] LSST Science Collaboration, 2009, ArXiv e-prints (arXiv:0912.0201), ADS Link
- [594] LSST Science Collaboration, Marshall, P., Anguita, T., et al., 2017, ArXiv e-prints (arXiv:1708.04058), ADS Link
- [595] **[Document-11624]**, LSST Science Council, 2011, *Optimization of LSST Deployment Parameters*, Document-11624, URL <https://ls.st/Document-11624>

- [596] **[Document-16168]**, LSST Systems Engineering, 2014, *LSST Key System Parameters Summary*, Document-16168, URL <https://ls.st/Document-16168>
- [597] Lupton, R., Blanton, M.R., Fekete, G., et al., 2004, *PASP*, 116, 133 (arXiv:astro-ph/0312483), doi:10.1086/382245, ADS Link
- [598] Luri, X., Palmer, M., Arenou, F., et al., 2014, *A&A*, 566, A119 (arXiv:1404.5861), doi:10.1051/0004-6361/201423636, ADS Link
- [599] **[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>
- [600] Makarov, V.V., 1998, *A&A*, 340, 309, ADS Link
- [601] Mangum, J.G., Wallace, P., 2015, *PASP*, 127, 74 (arXiv:1411.1617), doi:10.1086/679582, ADS Link
- [602] MariaDB, MariaDB – Enterprise Open Source Database & Data Warehouse, URL <https://mariadb.com/>
- [603] 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
- [604] **[LPM-51]**, McKercher, R., 2013, *Document Management Plan*, LPM-51, URL <https://ls.st/LPM-51>
- [605] **[LPM-43]**, McKercher, R., 2016, *WBS Structure*, LPM-43, URL <https://ls.st/LPM-43>
- [606] **[LPM-44]**, McKercher, R., 2016, *WBS Dictionary*, LPM-44, URL <https://ls.st/LPM-44>
- [607] Melnik, S., Gubarev, A., Long, J.J., et al., 2010, *Proc. VLDB Endow.*, 3, 330, doi:10.14778/1920841.1920886
- [608] 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
- [609] **[DMTN-064]**, Meyers, J., 2018, *Hyper Suprime-Cam donut analysis*, DMTN-064, URL <https://dmtn-064.lsst.io>,
LSST Data Management Technical Note

- [610] Meyers, J.E., Burchat, P.R., 2015, *ApJ*, 807, 182 (arXiv:1409.6273), doi:10.1088/0004-637X/807/2/182, ADS Link
- [611] 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
- [612] 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
- [613] Michalik, D., Lindegren, L., Hobbs, D., Lammers, U., 2014, *A&A*, 571, A85 (arXiv:1407.4025), doi:10.1051/0004-6361/201424606, ADS Link
- [614] Michalik, D., Lindegren, L., Hobbs, D., 2015, *A&A*, 574, A115 (arXiv:1412.8770), doi:10.1051/0004-6361/201425310, ADS Link
- [615] 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
- [616] Microsoft, Microsoft – SQL Server 2016, URL <https://www.microsoft.com/en-us/sql-server/sql-server-2016>
- [617] Microsystems, S., 1999, *Code Conventions for the Java Programming Language*, Tech. rep., Sun, <http://java.sun.com/docs/codeconv>
- [618] Microsystems, S., 1999, *Java Look and Feel Design Guidelines*, Tech. rep., Sun, <http://java.sun.com/products/jlfdg/index.htm>
- [619] Microsystems, S., 2000, *How to write Doc Comments for JavaDoc*, Tech. rep., Sun, <http://java.sun.com/products/jdk/javadoc/writingdoccomments/index.html>
- [620] Mignard, F., 2000, *A&A*, 354, 522, ADS Link
- [621] Mignard, F., 2001, *A practical scanning law for GAIA simulations*, Tech. rep., CERGA, GAIA-FM-010
- [622] Mignard, F., 2002, In: Bienayme, O., Turon, C. (eds.) *EAS Publications Series*, vol. 2 of *Engineering and Science*, 107–121, ADS Link

- [623] Mignard, F., 2002, *Considerations on the orbit of Gaia for simulations*, Tech. rep., Observatoire de la Côte D'Azur/CERGA, GAIA-FM-011
- [624] Mignard, F., 2004, Observatoire de la Côte D'Azur/CERGA, private communication
- [625] 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
- [626] Mignard, F., Klioner, S., 2012, *A&A*, 547, A59 (arXiv:1207.0025), doi:10.1051/0004-6361/201219927, ADS Link
- [627] 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
- [628] Miller, W.W., III, Sontag, C., Rose, J.F., 2003, In: Payne, H.E., Jedrzejewski, R.I., Hook, R.N. (eds.) *Astronomical Data Analysis Software and Systems XII*, vol. 295 of *Astronomical Society of the Pacific Conference Series*, 261–+, ADS Link
- [629] **[LTS-210]**, Mills, D., 2015, *Engineering and Facility Database Design Document*, LTS-210, URL <https://ls.st/LTS-210>
- [630] Mohammadi, M., Bazhiro, T., 2017, ArXiv e-prints (arXiv:1702.02968), ADS Link
- [631] 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
- [632] Monash, C., 2009, eBay's two enormous data warehouses, URL <http://www.dbms2.com/2009/04/30/ebays-two-enormous-data-warehouses/>
- [633] 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/>
- [634] 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/>
- [635] Moniez, M., 2003, *A&A*, 412, 105 (arXiv:astro-ph/0302460), doi:10.1051/0004-6361:20031478, ADS Link
- [636] Moore, G.E., 1965, *Electronics*, 38, 114

- [637] 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
- [638] 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
- [639] Moreau, L., Clifford, B., Freire, J., et al., 2011, *Future Generation Computer Systems*, 27, 743, URL <https://eprints.soton.ac.uk/271449/>
- [640] Moreno, F., Molina, A., Ortiz, J.L., 1997, *A&A*, 327, 1253, ADS Link
- [641] MPI, MPI Documents, URL <http://mpi-forum.org/docs/>
- [642] MPI4PY, MPI for Python, URL <http://mpi4py.readthedocs.io/en/stable/>
- [643] **[LDM-552]**, Mueller, F., 2017, *Qserv Software Test Specification*, LDM-552, URL <https://1s.st/LDM-552>
- [644] Muinonen, K., Belskaya, I.N., Cellino, A., et al., 2010, *Icarus*, 209, 542, doi:10.1016/j.icarus.2010.04.003, ADS Link
- [645] 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
- [646] Munari, U., Tomasella, L., 1999, *A&AS*, 137, 521, ADS Link
- [647] **[LDM-156]**, Myers, J., Jones, L., Axelrod, T., 2013, *Moving Object Pipeline System Design*, LDM-156, URL <https://1s.st/LDM-156>
- [648] 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
- [649] Narayan, G., Snodgrass, R., Keceioglu, J., et al., 2015, *IAU General Assembly*, 22, 58269, ADS Link
- [650] 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

- [651] NASA/Science Office of Standards and Technology, 1995, *Definition of the Flexible Image Transport System (FITS)*, Tech. Rep. NOST 100-1.1, NASA/NOST
- [652] 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
- [653] 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
- [654] 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
- [655] 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
- [656] 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
- [657] **[LTS-206]**, Neill, D., Sebag, J., Gressler, W., 2017, *Hexapods and Rotator Specifications Document*, LTS-206, URL <https://ls.st/LTS-206>
- [658] 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
- [659] **[LDM-502]**, Nidever, D., Economou, F., 2016, *The Measurement and Verification of DM Key Performance Metrics*, LDM-502, URL <https://ls.st/LDM-502>

- [660] 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
- [661] 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
- [662] Nieto-Santisteban, M.A., Szalay, A.S., Thakar, A.R., et al., 2005, ArXiv Computer Science e-prints (arXiv:cs/0502018), ADS Link
- [663] 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
- [664] **[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>
- [665] Nordstroem, B., Latham, D.W., Morse, J.A., et al., 1994, A&A, 287, 338, ADS Link
- [666] Obe, R.O., Hsu, L.S., 2015, *PostGIS in Action*, Manning Publications Co., Greenwich, CT, USA, 2nd edn.
- [667] O'Connor, P., 2015, Journal of Instrumentation, 10, C05010 (arXiv:1501.04137), doi:10.1088/1748-0221/10/05/C05010, ADS Link
- [668] **[LDM-563]**, O'Mullane, W., Jenness, T., 2017, *Butler Working Group Charge*, LDM-563, URL <https://ls.st/LDM-563>
- [669] O'Mullane, W., Lindegren, L., 1999, Baltic Astronomy, 8, 57, ADS Link
- [670] O'Mullane, W., Lindegren, L., 1999, *An Object-Oriented Framework for GAIA Data Processing*, Tech. rep., ESA
- [671] 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
- [672] **[LDM-572]**, O'Mullane, W., Petravick, D., 2017, *Chilean Data Access Center*, LDM-572, URL <https://ls.st/LDM-572>

- [673] **[DMTN-072]**, O'Mullane, W., Swinbank, J., 2018, *Cloud technical assesment*, DMTN-072, URL <https://dmtn-072.lsst.io>, LSST Data Management Technical Note
- [674] **[LPM-221]**, O'Mullane, W., Willman, B., 2017, *Charge for LSST Data Access Policy Working Group*, LPM-221, URL <https://ls.st/LPM-221>
- [675] 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
- [676] 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
- [677] 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
- [678] 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
- [679] 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
- [680] O'Mullane, W., Lammers, U., Bailer-Jones, C., et al., 2006, *ArXiv Astrophysics e-prints* (arXiv:astro-ph/0611885), ADS Link
- [681] O'Mullane, W., Hoar, J., Lammers, U., 2007, *ArXiv e-prints*, 712 (arXiv:0712.0249), ADS Link
- [682] 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
- [683] 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

- [684] 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
- [685] 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
- [686] O'Mullane, W., Luri, X., Parsons, P., et al., 2011, ArXiv e-prints (arXiv:1108.0355), ADS Link
- [687] **[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>
- [688] **[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>
- [689] **[DMTN-078]**, O'Mullane, W., Swinbank, J., Gelemann, M., Wu, X., Mueller, F., 2018, *Potential proofs of concept for Google Cloud*, DMTN-078, URL <https://dmtn-078.lsst.io>, LSST Data Management Technical Note
- [690] **[DMTN-096]**, O'Mullane, W., Swinbank, J., Guy, L., 2018, *Implementation and impacts of DM scope options*, DMTN-096, URL <https://dmtn-096.lsst.io>, LSST Data Management Technical Note
- [691] **[LDM-294]**, O'Mullane, W., Swinbank, J., Jurić, M., DMLT, 2018, *Data Management Organization and Management*, LDM-294, URL <https://ls.st/LDM-294>
- [692] **[LDM-503]**, O'Mullane, W., Swinbank, J., Jurić, M., Economou, F., 2018, *Data Management Test Plan*, LDM-503, URL <https://ls.st/LDM-503>
- [693] **[DMTN-119]**, O'Mullane, W., Gruendl, R., Blum, R., 2019, *Report on Operations Rehearsal #1*, DMTN-119, URL <http://dmtn-119.lsst.io>
- [694] 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
- [695] OpenMP, OpenMP, URL <http://www.openmp.org/>
- [696] Oracle, Oracle – Database 12c, URL <https://www.oracle.com/database/index.html>
- [697] 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

- [698] 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
- [699] Ortiz I., D.P., Lusted J., 2008, *Astronomical Data Query Language*, Tech. rep., IVOA, REC-ADQL-2.0
- [700] **[SATMP]**, Osuna, P., 2011, *Science Archives and VO Team (SAT) Management Plan*, SAT_GEN_PL_3.0_06_MP_30_May_2011, URL http://www.rssd.esa.int/l1ink/livelink/fetch/-415780/2741092/SAT_GEN_PL_3.0_06_MP_30May2011.pdf?nodeid=3120171&vernum=-2
- [701] Otto, S., Politzer, H.D., Preskill, J., Wise, M.B., 1986, *ApJ*, 304, 62, doi:10.1086/164144, ADS Link
- [702] Owen, R., 2016, In: *Python in Astronomy 2016*, 28, doi:10.5281/zenodo.48410, ADS Link
- [703] Owens, J.C., 1967, *Appl. Opt.*, 6, 51, doi:10.1364/AO.6.000051, ADS Link
- [704] Pankratius, V., Li, J., Gowanlock, M., et al., 2016, *IEEE Intelligent Systems*, 31, 3, doi:10.1109/MIS.2016.60
- [705] **[DMTN-010]**, Parejko, J., Owen, R., 2016, *WCS and Distortion Requirements and Existing Options*, DMTN-010, URL <https://dmtn-010.lsst.io>, LSST Data Management Technical Note
- [706] **[SQR-017]**, Parejko, J., Sick, J., 2017, *Validation Metrics Framework*, SQR-017, URL <https://sqr-017.lsst.io>
- [707] Parejko, J., Jenness, T., Owen, R., 2016, In: *Python in Astronomy 2016*, 17, doi:10.5281/zenodo.48414, ADS Link
- [708] **[DMTN-093]**, Patterson, M., Bellm, E., Swinbank, J., 2018, *Design of the LSST Alert Distribution System*, DMTN-093, URL <https://dmtn-093.lsst.io>, LSST Data Management Technical Note
- [709] **[DMTN-028]**, Patterson, M.T., 2018, *Benchmarking a distribution system for LSST alerts*, DMTN-028, URL <https://dmtn-028.lsst.io>, LSST Data Management Technical Note
- [710] **[DMTN-081]**, Patterson, M.T., 2018, *Deploying an alert stream mini-broker prototype*, DMTN-081, URL <https://dmtn-081.lsst.io>, LSST Data Management Technical Note, draft version

- [711] 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
- [712] Pegasus, Pegasus WMS, URL <https://pegasus.isi.edu/>
- [713] Pérez-Jordán, w., Castro-Almazán, J.A., Muñoz-Tuñón, C., 2018, MNRAS, 477, 5477 (arXiv:1804.05200), doi:10.1093/mnras/sty943, ADS Link
- [714] Perryman, A., 2010, *The Making of History's Greatest Star Map*, Astronomers' universe, Springer, URL <http://books.google.es/books?id=P-5pZ8GNuPIC>
- [715] Perryman, M., 2009, *Astronomical Applications of Astrometry: Ten Years of Exploitation of the Hipparcos Satellite Data*, Cambridge University Press
- [716] Perryman, M., de Bruijne, J., Lammers, U., 2008, Experimental Astronomy, 22, 143, doi:10.1007/s10686-008-9116-7, ADS Link
- [717] 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
- [718] 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
- [719] 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
- [720] 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
- [721] **[LPM-122]**, Petravick, D., 2015, *LSST Information Classification Policy*, LPM-122, URL <https://ls.st/LPM-122>
- [722] **[LPM-123]**, Petravick, D., 2017, *LSST General Acceptable Use Policy*, LPM-123, URL <https://ls.st/LPM-123>
- [723] **[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>

- [724] **[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>
- [725] **[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>
- [726] **[LPM-121]**, Petravick, D.L., Withers, A., 2016, *LSST Master Information Security Policy*, LPM-121, URL <https://ls.st/LPM-121>
- [727] Pickles, A.J., 1998, *PASP*, 110, 863, doi:10.1086/316197, ADS Link
- [728] 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
- [729] Pike, R., Dorward, S., Griesemer, R., Quinlan, S., 2005, *Scientific Programming*, 13, 277, doi:10.1155/2005/962135
- [730] **[Document-5373]**, Pinto, P., Kantor, J., Strauss, M., Sweeney, D., 2008, *Data Access White Paper*, Document-5373, URL <https://ls.st/Document-5373>
- [731] 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
- [732] **[Document-9541]**, Plante, R., Allsman, R., Axelrood, T., et al., 2010, *Results from Data Challenge 1*, Document-9541, URL <https://ls.st/Document-9541>
- [733] Pourbaix, D., 2002, *A&A*, 385, 686 (arXiv:astro-ph/0201132), doi:10.1051/0004-6361:20020149, ADS Link
- [734] Press, W.H., Teukolsky, S.A., Vetterling, W.T., Flannery, B.P., 2002, *Numerical Recipes in C*, Cambridge University Press, 2 edn.
- [735] 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
- [736] Project, A.L.S., Apache log4cxx, URL https://logging.apache.org/log4cxx/latest_stable/
- [737] **[LPM-162]**, Project Science Team, 2015, *Project Publication Policy*, LPM-162, URL <https://ls.st/LPM-162>

- [738] 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
- [739] Prusti, T., 2014, In: EAS Publications Series, vol. 67 of EAS Publications Series, 15–21, doi:10.1051/eas/1567003, ADS Link
- [740] Quobyte, Quobyte – Data Center File System, URL <https://www.quobyte.com/>
- [741] RabbitMQ, RabbitMQ – Messaging that just works, URL <https://www.rabbitmq.com/>
- [742] 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
- [743] **[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>
- [744] 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
- [745] 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
- [746] **[DMTN-007]**, Reiss, D., 2016, *Dipole characterization for image differencing*, DMTN-007, URL <https://dmtn-007.lsst.io>, LSST Data Management Technical Note
- [747] **[DMTN-021]**, Reiss, D.J., Lupton, R.H., 2016, *Implementation of Image Difference Decorrelation*, DMTN-021, URL <https://dmtn-021.lsst.io>, LSST Data Management Technical Note
- [748] 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
- [749] **[Report-561]**, Review Committee, 2018, *Telescope & Site (T&S) Software Review Report*, Report-561, URL <https://ls.st/Report-561>
- [750] 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

- [751] 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
- [752] 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
- [753] Risquez, D., van Leeuwen, F., Brown, A.G.A., 2012, *Experimental Astronomy*, 34, 669, doi:10.1007/s10686-012-9310-5, ADS Link
- [754] Rixon G., G.M., 2008, *Single-Sign-On Profile: Authentication Mechanisms*, Tech. rep., IVOA, REC-SSO-1.01
- [755] Robin, A.C., Reylé, C., Derrière, S., Picaud, S., 2003, *A&A*, 409, 523 (arXiv:astro-ph/0401052), doi:10.1051/0004-6361:20031117, ADS Link
- [756] 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
- [757] Robin, A.C., Luri, X., Reylé, C., et al., 2012, *ArXiv e-prints* (arXiv:1202.0132), ADS Link
- [758] 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
- [759] 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
- [760] 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
- [761] Rose, J., Akella, R., Binengar, S., et al., 1995, In: Shaw, R.A., Payne, H.E., Hayes, J.J.E. (eds.) *Astronomical Data Analysis Software and Systems IV*, vol. 77 of *Astronomical Society of the Pacific Conference Series*, 429–+, ADS Link
- [762] Röser, S., Schilbach, E., Schwan, H., et al., 2008, *A&A*, 488, 401 (arXiv:0806.1009), doi:10.1051/0004-6361:200809775, ADS Link
- [763] Royce, W., 1970, In: *Proceedings of IEEE WESCON*, 1–9, URL <http://www.cs.umd.edu/class/spring2003/cmsc838p/Process/waterfall.pdf>

- [764] Rucio, Rucio Distributed Data Management Documentation, URL <http://rucio.cern.ch/>
- [765] **[DMTR-41]**, S. Krughoff, J.W.V., 2017, *Characterization Metric Report: Science Pipelines Version 14.0*, DMTR-41, URL <https://ls.st/DMTR-41>
- [766] 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
- [767] 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>
- [768] Sánchez, C., Carrasco Kind, M., Lin, H., et al., 2014, MNRAS, 445, 1482 (arXiv:1406.4407), doi:10.1093/mnras/stu1836, ADS Link
- [769] 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
- [770] 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
- [771] 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
- [772] 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>
- [773] **[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>
- [774] 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
- [775] Seabroke, G.M., Holland, A.D., Burt, D., Robbins, M.S., 2010, Proc. SPIE, 7742, 774
- [776] 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

- [777] 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
- [778] **[LSE-60]**, Sebag, J., Krabbendam, V., 2018, *LSST Telescope and Site (TS) Requirements*, LSE-60, URL <https://ls.st/LSE-60>
- [779] **[Document-26273]**, Selvy, B., 2017, *Risk & Opportunity Management Report May 2017*, Document-26273, URL <https://ls.st/Document-26273>
- [780] 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
- [781] **[LTS-807]**, Serio, A., 2018, *LSST Operations Visualization Environment (LOVE) Requirements*, LTS-807, URL <https://ls.st/LTS-807>
- [782] 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
- [783] **[Document-10762]**, Shaw, R., Strauss, M., 2011, *LSST Data Challenge Handbook Version 1.1*, Document-10762, URL <https://ls.st/Document-10762>
- [784] 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
- [785] **[Document-15286]**, Shaw, R.A., 2012, *LSST Data Challenge Handbook: Summer 2012 Data Release*, Document-15286, URL <https://ls.st/Document-15286>
- [786] **[Document-15299]**, Shaw, R.A., 2013, *LSST Data Challenge Handbook: Winter 2013 Early Data Release*, Document-15299, URL <https://ls.st/Document-15299>
- [787] 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
- [788] **[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>
- [789] 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

- [790] Shuster, M.D., 1993, *Journal of the astronomical sciences*, 41, n.4, 439
- [791] Sick, J., 2016, LSST DM Community Resources, URL <http://dx.doi.org/10.5281/zenodo.44643>,
NSF Pavilion Talk given at AAS 227.
- [792] **[LDM-493]**, Sick, J., 2016, *Data Management Documentation Architecture*, LDM-493, URL <https://ls.st/LDM-493>
- [793] **[SQR-019]**, Sick, J., Fausti, A., 2018, *LSST Verification Framework API Demonstration*, SQR-019, URL <https://sqr-019.lsst.io>
- [794] 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
- [795] 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
- [796] Simon, J.L., 1983, *A&A*, 120, 197, ADS Link
- [797] Sivia, D., 1996, *Data Analysis. A Bayesian Tutorial*, OUP, 1 edn.
- [798] Skrutskie, M.F., Cutri, R.M., Stiening, R., et al., 2006, *The Astronomical Journal*, 131, doi:10.1086/498708, ADS Link
- [799] **[DMTN-086]**, Slater, C., 2018, *Next-to-the-Database Processing Use Cases*, DMTN-086, URL <https://dmtn-086.lsst.io>,
LSST Data Management Technical Note
- [800] **[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>
- [801] 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
- [802] **[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>
- [803] **[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>

- [804] Smolčić, V., Ivezić, Ž., Knapp, G.R., et al., 2004, *ApJ*, 615, L141 (arXiv:astro-ph/0403218), doi:10.1086/426475, ADS Link
- [805] Soderhjelm, S., 2004, *Theoretical modelling of observational double-star distribution functions.*, Tech. rep., ESA, DMS-SS-05
- [806] 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
- [807] Soffel, M., Klioner, S.A., Petit, G., et al., 2003, *AJ*, 126, 2687 (arXiv:astro-ph/0303376), doi:10.1086/378162, ADS Link
- [808] Software, T., 2005, *TIOBE Programming Community Index*, Tech. rep., TIOBE, URL <http://www.tiobe.com/tiobe-index>
- [809] for Software Standardisation, E.B., Control, 2004, *Java Coding Standards*, Tech. rep., ESA, URL http://www.rssd.esa.int/llink/livmlink/Java_coding_standards.pdf?func=doc.Fetch&nodeId=504569&docTitle=Java+coding+standards&vernum=1
- [810] Sordo, R., Vallenari, A., Tantalò, R., et al., 2011, *Journal of Physics Conference Series*, 328, 012006, doi:10.1088/1742-6596/328/1/012006, ADS Link
- [811] Sozzetti, A., 2005, *PASP*, 117, 1021 (arXiv:astro-ph/0507115), doi:10.1086/444487, ADS Link
- [812] 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
- [813] 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
- [814] Springel, V., White, S.D.M., Jenkins, A., et al., 2005, *Nature*, 435, 629 (arXiv:astro-ph/0504097), doi:10.1038/nature03597, ADS Link
- [815] Spyak, P., Wolfe, W., 1991, *Optical Engineering*, 31, 1746
- [816] Stallman, R., 2001, *GNU Coding Standards*, Tech. rep., GNU
- [817] Stetson, P.B., 1996, *PASP*, 108, 851, doi:10.1086/133808, ADS Link
- [818] Stone, R.C., 1996, *PASP*, 108, 1051, doi:10.1086/133831, ADS Link

- [819] 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>
- [820] 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
- [821] Street, R.A., Bowman, M., Saunders, E.S., Boroson, T., 2018, In: Software and Cyber-infrastructure for Astronomy V, vol. 10707 of Proc. SPIE, 1070711 (arXiv:1806.09557), doi:10.1117/12.2312293, ADS Link
- [822] **[DMTR-22]**, Suberlak, K., Ivezić, Ž., The PDAC Team, 2017, *Prototype Data Access Center: User Report*, DMTR-22, URL <https://ls.st/DMTR-22>
- [823] **[DMTN-077]**, Suberlak, K., Slater, C., Ž. Ivezić, 2018, *LSST Fall 2017 Crowded Fields Testing*, DMTN-077, URL <https://wdmtn-077.lsst.io>, LSST Data Management Technical Note
- [824] **[DMTN-037]**, Sullivan, I., 2017, *DCR-matched template generation*, DMTN-037, URL <https://dmtn-037.lsst.io>, LSST Data Management Technical Note
- [825] **[DMTN-121]**, Sullivan, I., 2019, *Impact of variable seeing on DCR coadd generation*, DMTN-121, URL <http://dmtn-121.lsst.io>
- [826] support, D., 2006, *Linux Deployment guide*, Tech. rep., Dell, <http://support.dell.com/support/edocs/software/appora10/lin10g/en/dg/10g21en0.pdf>
- [827] **[LPM-55]**, Sweeney, D., McKercher, R., 2013, *Project Quality Assurance Plan*, LPM-55, URL <https://ls.st/LPM-55>
- [828] 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
- [829] Swinbank, J., 2014, *Astronomy and Computing*, 7, 12 (arXiv:1409.4805), doi:10.1016/j.ascom.2014.09.001
- [830] 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

- [831] 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
- [832] **[DMTN-074]**, Swinbank, J., 2018, *DM QA Status & Plans*, DMTN-074, URL <https://dmtn-074.lsst.io>,
LSST Data Management Technical Note
- [833] **[DMTR-111]**, Swinbank, J., 2018, *LDM-503-09a (Science pipelines fall 2018 release) Test Plan and Report*, DMTR-111, URL <https://ls.st/DMTR-111>
- [834] **[DMTR-112]**, Swinbank, J., 2018, *LDM-503-07 (Camera data processing) Test Plan and Report*, DMTR-112, URL <https://ls.st/DMTR-112>
- [835] **[LDM-622]**, Swinbank, J., 2018, *Data Management QA Strategy Working Group Charge*, LDM-622, URL <https://ls.st/LDM-622>
- [836] **[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>
- [837] **[DMTN-044]**, Swinbank, J.D., 2017, *LSST DM Software Release Considerations*, DMTN-044, URL <https://dmtn-044.lsst.io>,
LSST Data Management Technical Note
- [838] **[LDM-534]**, Swinbank, J.D., 2017, *Level 2 System Software Test Specification*, LDM-534, URL <https://ls.st/LDM-534>
- [839] **[LDM-151]**, Swinbank, J.D., et al., 2017, *Data Management Science Pipelines Design*, LDM-151, URL <https://ls.st/LDM-151>
- [840] Szalay, A.S., Gray, J., Thakar, A.R., et al., 2002, eprint arXiv:cs/0202013 (arXiv:cs/0202013), ADS Link
- [841] 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
- [842] Szalay, A.S., Gray, J., Fekete, G., et al., 2007, eprint arXiv:cs/0701164 (arXiv:cs/0701164), ADS Link

- [843] 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/>
- [844] **[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>
- [845] Tabur, V., 2007, PASA, 24, 189 (arXiv:0710.3618), doi:10.1071/AS07028, ADS Link
- [846] Taff, L.G., Bucciarelli, B., Lattanzi, M.G., 1990, ApJ, 361, 667, doi:10.1086/169230, ADS Link
- [847] Tapiador, D., O'Mullane, W., Browni, A.G.A., et al., 2014, Computer Physics Communications, 185, doi:10.1016/j.cpc.2014.02.010
- [848] Taylor, M., Boch, T., Fitzpatrick, M., et al., 2011, ArXiv e-prints (arXiv:1110.0528), ADS Link
- [849] 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
- [850] project team, A.S., 2002, *Gaia System Level Technical Reassessment Study*, Tech. rep., EADS Astrium, EF5/FR/PC/038.02
- [851] team, E.A.G., 2005, *GAIA Definition Study*, Tech. rep., EADS/Astrium, Final Presentation, Noordwijk, June 8, 2005
- [852] Team, G.P., 2006, *Gaia Mission Implementation Requirement Document*, Tech. rep., ESA, GAIA-EST-RQ-00457
- [853] **[LEP-031]**, Team, T.L.E., 2018, *LSST EPO Design*, LEP-031, URL <https://ls.st/LEP-031>
- [854] Texier, D., 2005, *Note on Science Operations Ground Segment Documentation*, Tech. rep., ESA, SOGS-TN-ESAC-DT-001
- [855] Thakar, A.R., 2008, Computing in Science and Engineering, 10, 9, doi:10.1109/MCSE.2008.17, ADS Link

- [856] 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
- [857] The Gaia Team, Science Performance of the Gaia Mission, URL <https://www.cosmos.esa.int/web/gaia/science-performance>
- [858] Tholen, D.J., 1984, Ph.D. Thesis
- [859] 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
- [860] **[Document-31100]**, Thomson, J.R., 2019, *LSST Benchmarkin of Qserv and BigQuery*, Document-31100, URL <https://ls.st/Document-31100>
- [861] **[DMTR-16]**, Thukral, V., 2017, *Qserv Fall 16 Large Scale Tests/KPMs*, DMTR-16, URL <https://ls.st/DMTR-16>
- [862] **[DMTR-17]**, Thukral, V., 2018, *Qserv Fall 17 Large Scale Tests/KPMs*, DMTR-17, URL <https://ls.st/DMTR-17>
- [863] 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>
- [864] Tomaney, A.B., Crotts, A.P.S., 1996, *AJ*, 112, 2872 (arXiv:astro-ph/9610066), doi:10.1086/118228, ADS Link
- [865] 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>
- [866] **[DMTN-047]**, Tommaney, J., Becla, J., Lim, K.T., Wang, D., 2011, *Tests with InfiniDB*, DMTN-047, URL <https://dmtn-047.lsst.io>, LSST Data Management Technical Note
- [867] TOP500, URL <http://www.top500.org>, TOP500 Supercomputer Sites
- [868] 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
- [869] Turon, C., O'Flaherty, K.S., Perryman, M.A.C. (eds.), 2005, *ESA SP-576: The Three-Dimensional Universe with Gaia*

- [870] 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
- [871] **[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://ls.st/LSE-63>
- [872] Ulin, T., 2013, *Driving MySQL Innovation*, Percona Live: MySQL Conference and Expo, URL <https://www.youtube.com/watch?v=0pHTV59I1gs>
- [873] 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>
- [874] 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>
- [875] 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>
- [876] 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>
- [877] 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
- [878] **[LDM-130]**, Unknown, 2017, *LSST Science User Interface and Tools Requirements*, LDM-130, URL <https://ls.st/LDM-130>
- [879] **[LDM-532]**, Unknown, 2017, *NCSA Enclave Test Specification*, LDM-532, URL <https://ls.st/LDM-532>
- [880] **[LDM-535]**, Unknown, 2017, *Data Backbone Test Specification*, LDM-535, URL <https://ls.st/LDM-535>

- [881] **[LDM-536]**, Unknown, 2017, *Data Backbone Data Services Test Specification*, LDM-536, URL <https://ls.st/LDM-536>
- [882] **[LDM-537]**, Unknown, 2017, *Data Backbone Infrastructure Test Specification*, LDM-537, URL <https://ls.st/LDM-537>
- [883] **[LDM-539]**, Unknown, 2017, *Data Access Center Enclave Test Specification*, LDM-539, URL <https://ls.st/LDM-539>
- [884] **[LDM-541]**, Unknown, 2017, *Commissioning Cluster Enclave Test Specification*, LDM-541, URL <https://ls.st/LDM-541>
- [885] 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
- [886] 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
- [887] **[Gaia-NT-32000-115-CNES]**, Valadier, J.C., 2008, *Etude de risque EBIOS du système CNES-DPC (Limited distribution)*, Gaia-NT-32000-115-CNES
- [888] 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
- [889] van Dokkum, P.G., 2001, *PASP*, 113, 1420 (arXiv:astro-ph/0108003), doi:10.1086/323894, ADS Link
- [890] **[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>
- [891] van Leeuwen, F., 1997, *Space Science Reviews*, 81, 201, ADS Link
- [892] van Leeuwen, F., 2005, *A&A*, 439, 805 (arXiv:astro-ph/0505431), doi:10.1051/0004-6361:20053192, ADS Link
- [893] van Leeuwen, F., Fantino, E., 2005, *A&A*, 439, 791 (arXiv:astro-ph/0505432), doi:10.1051/0004-6361:20053193, ADS Link

- [894] 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
- [895] 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
- [896] VanderPlas, J.T., 2017, ArXiv e-prints (arXiv:1703.09824), ADS Link
- [897] VanderPlas, J.T., Ivezić, Ž., 2015, *ApJ*, 812, 18 (arXiv:1502.01344), doi:10.1088/0004-637X/812/1/18, ADS Link
- [898] 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
- [899] Veron-Cetty, M., Veron, P., 2010, *Astronomy and Astrophysics*, 518, doi:10.1051/0004-6361/201014188, ADS Link
- [900] 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
- [901] van der Vorst, H., 2003, *Iterative Krylov Methods for Large Linear Systems*, Cambridge University Press
- [902] 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
- [903] 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
- [904] Vuerli, C., O'Mullane, W., 2000, *DBMS-COTS test week report*, Tech. rep., ESA, PL-COM-OAT-TN-009
- [905] 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
- [906] 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

- [907] 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>
- [908] 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
- [909] Warell, J., Lagerkvist, C.I., 2006, A&A, submitted
- [910] Wertz(Editor), J.R., 1978, *Spacecraft Attitude Determination and Control*, Kluwer Academic Publishers, 1 edn.
- [911] Wickham, H., 2014, Journal of Statistical Software, Articles, 59, 1, URL <https://www.jstatsoft.org/v059/i10>, doi:10.18637/jss.v059.i10
- [912] Wieprecht, E., Brumfit, J., Bakker, J., 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, 376–+, ADS Link
- [913] 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
- [914] Wilkinson, M.I., Evans, N.W., 1999, MNRAS, 310, 645 (arXiv:astro-ph/9906197), ADS Link
- [915] 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
- [916] Will, C., 1993, *Theory and experiment in gravitational physics*, Cambridge University Press, 2 edn.
- [917] **[LPM-251]**, William O'Mullane, M.G., Beth Willman, 2018, *Policy for Independent Data Access Centers*, LPM-251, URL <https://ls.st/LPM-251>
- [918] **[LSO-011]**, William O'Mullane, L.G., Phil Marshall, 2019, *Release Scenarios for LSST Data*, LSO-011, URL <https://lso-011.lsst.io>
- [919] **[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>
- [920] **[LPM-261]**, Willman, B., Graham, M., O'Mullane, W., Petravick, D., 2018, *PLEASE USE LPM-261 not LSE-349 . Access Policy for LSST Data and Data Access Center*, LPM-261, URL <https://ls.st/LPM-261>

- [921] Windmark, F., Lindegren, L., Hobbs, D., 2011, *A&A*, 530, A76 (arXiv:1104.2348), doi:10.1051/0004-6361/201116929, ADS Link
- [922] **[LSE-279]**, Withers, A., 2017, *Concept of Operations for Unified LSST Authentication and Authorization Services*, LSE-279, URL <https://ls.st/LSE-279>
- [923] **[Document-15077]**, Wolff, S., 2013, *LSST Project Overview*, Document-15077, URL <https://ls.st/Document-15077>
- [924] **[LPM-73]**, Wolff, S., 2013, *Operations Plan*, LPM-73, URL <https://ls.st/LPM-73>
- [925] **[Document-13380]**, Wolff, S., Kahn, S., 2013, *Data Rights and Data Management Policy*, Document-13380, URL <https://ls.st/Document-13380>
- [926] **[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>
- [927] **[DMTR-15]**, Wood-Vasey, M., Swinbank, J., 2017, *Characterization Metric Report: Science Pipelines Version 13.0*, DMTR-15, URL <https://ls.st/DMTR-15>
- [928] 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
- [929] 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
- [930] 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
- [931] Wyrzykowski, L., Hodgkin, S., Blogorodnova, N., Kuposov, S., Burgon, R., 2012, *ArXiv e-prints* (arXiv:1210.5007), ADS Link
- [932] Yagi, M., 2012, *PASP*, 124, 1347 (arXiv:1210.8212), doi:10.1086/668891, ADS Link
- [933] 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
- [934] *YAML, The Official YAML Web Site*, URL <http://yaml.org/>

- [935] 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
- [936] **[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>
- [937] 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
- [938] 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
- [939] Zechmeister, M., Kürster, M., 2009, *A&A*, 496, 577 (arXiv:0901.2573), doi:10.1051/0004-6361/200811296, ADS Link
- [940] Zellner, B., Tholen, D.J., Tedesco, E.F., 1985, *Icarus*, 61, 355, doi:10.1016/0019-1035(85)90133-2, ADS Link
- [941] Zicari, R.V., 2011, *Objects in Space*, URL <http://www.odbms.org/blog/2011/02/objects-in-space/>
- [942] 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
- [943] Zucker, S., Mazeh, T., 1994, *ApJ*, 420, 806, doi:10.1086/173605, ADS Link
- [944] Zucker, S., Mazeh, T., Santos, N.C., Udry, S., Mayor, M., 2004, *A&A*, 426, 695, doi:10.1051/0004-6361:20040384, ADS Link