

Publications 21 total; 9 as lead author

1. J. Zuntz, F. Lanusse, **A.I. Malz**, A.H. Wright, A. Slosar, et al. 2021. *submitted to MNRAS*. The LSST-DESC 3x2pt Tomography Optimization Challenge ([arXiv:2108.13418](#))
Lead author: conceptualization, formal analysis, methodology, visualization, writing (original draft)
2. **A.I. Malz**, F. Lanusse, J.F. Crenshaw, M.L. Graham. 2021. *submitted to MNRAS*. An information-based metric for observing strategy optimization, demonstrated in the context of photometric redshifts with applications to cosmology ([arXiv:2104.08229](#))
Lead author: conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, software, validation, visualization, writing (original draft)
3. M. Agüena, C. Avestruz, C. Combet, S. Fu, R. Herbonnet, **A. I. Malz**, M. Penna-Lima, M. Ricci, S. D. P. Vitenti, et al. 2021. *accepted to MNRAS*. CLMM: a LSST-DESC Cluster weak Lensing Mass Modeling library for cosmology ([arXiv:2107.10857](#))
Lead author: conceptualization, funding acquisition, methodology, project administration, software, validation, writing (original draft)
4. **A.I. Malz**, D.W. Hogg. 2021. *accepted to ApJ 23 July 2021*. How to obtain the redshift distribution from probabilistic redshift estimates ([arXiv:2007.12178](#))
Lead author: conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, software, validation, visualization, writing (original draft)
5. **A.I. Malz**. 2020. PRD 103 083502. “How NOT to obtain the redshift distribution from probabilistic redshift estimates”
Sole author
6. B. Moews, M.S. Schmitz, A.J. Lawler, J. Zuntz, **A.I. Malz**, R.S. de Souza, R. Vilalta, A. Krone-Martins, E.E.O. Ishida. 2020. MNRAS 500 1 859. “Ridges in the Dark Energy Survey for cosmic trough identification”
Contributor: conceptualization, methodology, writing (original draft)
7. R. Hložek, K.A. Ponder, **A.I. Malz**, M. Dai, G. Narayan, E.E.O. Ishida, et al. 2020. *submitted to AJ 22 December 2020*. Results of the Photometric LSST Astronomical Time-series Classification Challenge (PLAsTiCC) ([arXiv:2012.12392](#))
Lead author: conceptualization, formal analysis, investigation, methodology, visualization, writing (original draft)
8. S.J. Schmidt, **A.I. Malz**, J.Y.H. Soo, et al. 2020. MNRAS 499 2 1587. “Evaluation of probabilistic photometric redshift estimation approaches for LSST”
Lead author: conceptualization, formal analysis, investigation, methodology, project administration, software, supervision, validation, visualization, writing (original draft)
9. N. Kennamer, E.E.O. Ishida, S. Gonzalez-Gaitan, R.S. de Souza, A. Ihler, K. Ponder, R. Vilalta, A. Moller, D.O. Jones, M. Dai, A. Krone-Martins, B. Quint, S. Sreejith, **A.I. Malz**, L. Galbany. 2020. IEEE Symposium Series on Computational Intelligence. Active learning with RESSPECT: Resource allocation for extragalactic astronomical transients ([arXiv:2010.05941](#))
Contributor: conceptualization, methodology
10. N. Dalmaso, T. Pospisil, A.B. Lee, R. Izbicki, P.E. Freeman, **A.I. Malz**. 2019. As. & Com. 20 100362. “Conditional Density Estimation Tools in Python and R with Applications to Photometric Redshifts and Likelihood-Free Cosmological Inference”
Contributor: data curation, writing (original draft)
11. B. Moews, R.S. de Souza, E.E.O. Ishida, **A.I. Malz**, C. Heneka, R. Vilalta, J. Zuntz. 2019. PRD 99 123529. “Stress testing the dark energy equation of state imprint on supernova data”
Contributor: conceptualization, formal analysis, investigation, methodology, validation, writing (original draft)
12. T. Cantat-Gaudin, A. Krone-Martins, N. Sedaghat, A. Farahi, R.S. de Souza, R. Skolidis, **A.I. Malz**, S. Macedo, B. Moews, C. Jordi, A. Moitinho, A. Castro-Ginard, E.E.O. Ishida, C. Heneka, A. Boucaud, A.M.M. Trindade. 2019. A&A 624 A126. “Gaia DR2 unravels incompleteness of nearby cluster population: New open clusters in the direction of Perseus”
Contributor: conceptualization, writing (original draft)

13. **A.I. Malz**, R. Hložek, et al. 2019. AJ 158 5 171. “The Photometric LSST Astronomical Time-series Classification Challenge (PLAsTiCC): Selection of a performance metric for classification probabilities balancing diverse science goals”
Lead author: conceptualization, data curation, formal analysis, investigation, methodology, project administration, software, supervision, validation, visualization, writing (original draft)
14. T. Allam Jr., A. Bahmanyar, R. Biswas, M. Dai, L. Galbany, R. Hložek, E.E.O. Ishida, S.W. Jha, D.O. Jones, R. Kessler, M. Lochner, A.A. Mahabal, **A.I. Malz**, K.S. Mandel, J.R. Martinez-Galarza, J.D. McEwen, D. Muthukrishna, G. Narayan, H.V. Peiris, C.M. Peters, K. Ponder, C.N. Setzer. *LSST-DESC Research Note*. 2018. The Photometric LSST Astronomical Time-series Classification Challenge (PLAsTiCC): Data set ([arXiv:1810.00001](#))
Contributor: conceptualization, methodology, software, writing (review/editing)
15. C. Chang, M. Wang, S. Dodelson, T. Eifler, C. Heymans, M. Jarvis, M.J. Jee, S. Joudaki, E. Krause, **A.I. Malz**, R. Mandelbaum, I. Mohammed, M. Schneider, M. Simet, M.A. Troxel, J. Zuntz. 2018. MNRAS 482 3 3696. “A Unified Analysis of Four Cosmic Shear Surveys”
Contributor: methodology, writing (original draft)
16. **A.I. Malz**, P.J. Marshall, et al. 2018. AJ 156 0 35. “Approximating photo-z PDFs for large surveys”
Lead author: conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, software, validation, visualization, writing (original draft)
17. P.J. Marshall, et al. 2017. *whitepaper*. Science-Driven Optimization of the LSST Observing Strategy ([arXiv:1708.04058](#))
Contributor: conceptualization, methodology, writing (original draft)
18. A.S. Leung, V. Acquaviva, E. Gawiser, R. Ciardullo, E. Komatsu, **A.I. Malz**, G.R. Zeimann, et.al. 2017. ApJ 843 2 130. “Bayesian Redshift Classification of Emission-Line Galaxies with Photometric Equivalent Widths”
Contributor: conceptualization, writing (review/editing)
19. J.S. Bridge, C. Gronwall, R. Ciardullo, A. Hagen, G. Zeimann, **A.I. Malz**, V. Acquaviva, D.P. Schneider, N. Drory, K. Gebhardt, S. Jogee. 2015. ApJ 799 2 205. “Physical and Morphological Properties of [O II] Emitting Galaxies in the HETDEX Pilot Survey”
Contributor: conceptualization, methodology, writing (review/editing)
20. R. Ciardullo, G.R. Zeimann, C. Gronwall, H. Gebhardt, D.P. Schneider, A. Hagen, **A.I. Malz**, G.A. Blanc, G.J. Hill, N. Drory, E. Gawiser. 2014. ApJ 796 1 64. “HST Emission Line Galaxies at $z \sim 2$: The Ly-alpha Escape Fraction”
Contributor: conceptualization, methodology, writing (review/editing)
21. A. Hagen, R. Ciardullo, C. Gronwall, V. Acquaviva, J. Bridge, G.R. Zeimann, G.A. Blanc, N.A. Bond, S.L. Finkelstein, M. Song, E. Gawiser, D.B. Fox, H. Gebhardt, **A.I. Malz**, D.P. Schneider, N. Drory, K. Gebhardt, G.J. Hill. 2014. ApJ 786 1 59. “Spectral Energy Distribution Fitting of HETDEX Pilot Survey Lyman-alpha Emitters in COSMOS and GOODS-N”
Contributor: conceptualization, methodology, writing (review/editing)

Published Software

A.I. Malz. 2020. “**chippr**”.

Cosmological Hierarchical Inference with Probabilistic Photometric Redshifts; **Sole author**

A.I. Malz & the PLAsTiCC team. 2019. “**ProClam**”.

Probabilistic Classification Metrics; **Lead author:** conceptualization, methodology, software, validation, visualization, writing (documentation)

B. Brewer, T.K. Leung & **A.I. Malz**. 2018. “**StarStudded**”.

probabilistic catalogs from crowded stellar fields; Contributor: software

A.I. Malz & P.J. Marshall. 2017. “**qp**”.

handling diverse parameterizations of univariate probability density functions; **Lead author:** conceptualization, methodology, software, validation, visualization, writing (documentation)

Citeable Presentations & Non-standard Publications

- A.I. Malz**, F. Lanusse, J.F. Crenshaw, M.L. Graham. 2021. American Astronomical Society, AAS Meeting #238, id. 230.04. “**TheLastMetric**: an information-based observing strategy metric for photometric redshifts, cosmology, and more”
contributed poster; **Lead author**: conceptualization, formal analysis, investigation, methodology, project administration, software, validation, visualization, writing (original draft & review/editing)
- J.F. Crenshaw, J.B. Kalmbach, **A.I. Malz**, A. Connolly. 2021. American Astronomical Society, AAS Meeting #238, id. 230.01. “**PZFlow**: normalizing flows for cosmology, with applications to forward modeling galaxy photometry”
contributed poster; Contributor: supervision, validation
- A.I. Malz**. 2021. American Astronomical Society, AAS Meeting #238 Meeting-in-a-Meeting: Machine Learning in Astronomy, id. 103.02. “Proceed with caution: how, and how not, to use machine learning to probe cosmology”
invited talk; **Sole author**
- A.I. Malz**. 2021. American Astronomical Society, AAS Meeting #237, id. 443.05. “The DESC Photometric Redshifts Working Group: Challenges & Opportunities”
contributed talk; **Sole author**
- A.I. Malz**. 2019. American Astronomical Society, AAS Meeting #233, Surveys & Large Programs, id. 313.05D. “Probabilistic data analysis methods for large photometric surveys”
contributed talk; **Sole author**
- A.I. Malz**. 2019. American Astronomical Society, AAS Meeting #233, Larger Efforts in Education & Public Outreach, id. 212.05. “The Photometric LSST Astronomical Time Series Classification Challenge (PLAsTiCC): challenge design and evaluation criteria”
contributed talk; **Sole author**
- A.I. Malz**, et al. 2018. “[Dance Your Ph.D. 2018/9: Probabilistic methods for cosmological analysis with uncertainty-dominated data](#)”
educational music video; **Lead author**: conceptualization, funding acquisition, methodology (choreography), project administration (production), resources (costumes), software (video editing & web maintenance), supervision, visualization
- C.M. Peters, **A.I. Malz** & R. Hlozek. 2018. American Astronomical Society, AAS Meeting #231, id. 245.03. “Supernova Cosmology Inference with Probabilistic Photometric Redshifts”
contributed poster; **Lead author**: conceptualization, data curation, formal analysis, investigation, methodology, software, validation, visualization, writing (original draft & review/editing)
- A.I. Malz**. 2017. Cooper Square Review. “Going nowhere fast”
science communication; **Sole author**
- A.I. Malz** & S. Shandera. 2014. American Astronomical Society, AAS Meeting #223, id. 456.04. “Probing Gravity in the High-Redshift Universe with HETDEX”
contributed poster; **Lead author**: conceptualization, data curation, formal analysis, investigation, methodology, visualization, writing (original draft & review/editing)
- A.I. Malz**, R. Rich & S. Lepine. 2009. American Astronomical Society, AAS Meeting #213, id. 602.04. “Low-mass Binaries in the Galactic Halo Resolved by Adaptive Optics”
contributed poster; **Lead author**: formal analysis, funding acquisition, investigation, writing (original draft & review/editing)