

# Adrian M. Price-Whelan — Curriculum Vitae

Flatiron Research Fellow

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## Education and past positions

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2016–2019, Lyman J. Spitzer, Jr. fellow, Princeton University

PhD 2016, Astronomy, Columbia University. *Advisor: K. V. Johnston*

MA 2013, MPhil 2014, Astronomy, Columbia University. *Advisor: K. V. Johnston*

Honors BA 2010, Physics, New York University. *Advisor: D. W. Hogg*

## Publications — *ADS search*

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refereed: 69 — first author: 17 — citations: 16548 — h-index: 31 (2020-11-29)

### Refereed

- 69 Shipp, N.; **Price-Whelan, A. M.**; Tavangar, K.; Mateu, C. *et al.*, *Discovery of Extended Tidal Tails around the Globular Cluster Palomar 13*, *AJ*, **160**, 244, 2020 (arXiv:2006.12501)
- 68 Mazzola, C. N. *et al.* (incl. **APW**), *The close binary fraction as a function of stellar parameters in APOGEE: a strong anticorrelation with  $\alpha$  abundances*, *MNRAS*, **499**, 1607, 2020 (arXiv:2007.09059)
- 67 Angus, R.; Beane, A.; **Price-Whelan, A. M.**; Newton, E. *et al.*, *Exploring the Evolution of Stellar Rotation Using Galactic Kinematics*, *AJ*, **160**, 90, 2020 (arXiv:2005.09387) [5 citations]
- 66 Ahumada, R. *et al.* (incl. **APW**), *The 16th Data Release of the Sloan Digital Sky Surveys: First Release from the APOGEE-2 Southern Survey and Full Release of eBOSS Spectra*, *ApJS*, **249**, 3, 2020 (arXiv:1912.02905) [123 citations]
- 65 Caldwell, N.; Bonaca, A.; **Price-Whelan, A. M.**; Sesar, B. *et al.*, *A Larger Extent for the Ophiuchus Stream*, *AJ*, **159**, 287, 2020 (arXiv:2004.14350)
- 64 **Price-Whelan, A. M.**; Hogg, D. W.; Rix, H.; Beaton, R. L. *et al.*, *Close Binary Companions to APOGEE DR16 Stars: 20,000 Binary-star Systems Across the Color-Magnitude Diagram*, *ApJ*, **895**, 2, 2020 (arXiv:2002.00014) [21 citations]
- 63 Bonaca, A. *et al.* (incl. **APW**), *High-resolution Spectroscopy of the GD-1 Stellar Stream Localizes the Perturber near the Orbital Plane of Sagittarius*, *ApJ*, **892**, 2020 (arXiv:2001.07215) [7 citations]
- 62 Pope, B. J. S. *et al.* (incl. **APW**), *No Massive Companion to the Coherent Radio-emitting M Dwarf GJ 1151*, *ApJ*, **890**, 2020 (arXiv:2002.07850) [2 citations]
- 61 Mumford, S. *et al.* (incl. **APW**), *SunPy: A Python package for Solar Physics*, *JOSS*, **5**, 1832, 2020 [6 citations]

- 60 Hayes, C. R. et al. (incl. **APW**), *Metallicity and  $\alpha$ -Element Abundance Gradients along the Sagittarius Stream as Seen by APOGEE*, ApJ, **889**, 63, 2020 (arXiv:1912.06707) [12 citations]
- 59 Bonaca, A.; Pearson, S.; **Price-Whelan, A. M.**; Dey, A. et al., *Variations in the Width, Density, and Direction of the Palomar 5 Tidal Tails*, ApJ, **889**, 70, 2020 (arXiv:1910.00592) [9 citations]
- 58 Nidever, D. L.; **Price-Whelan, A. M.**; Choi, Y.; Beaton, R. L. et al., *Spectroscopy of the Young Stellar Association Price-Whelan 1: Origin in the Magellanic Leading Arm and Constraints on the Milky Way Hot Halo*, ApJ, **887**, 115, 2019 (arXiv:1910.05360) [5 citations]
- 57 **Price-Whelan, A. M.**; Nidever, D. L.; Choi, Y.; Schlafly, E. F. et al., *Discovery of a Disrupting Open Cluster Far into the Milky Way Halo: A Recent Star Formation Event in the Leading Arm of the Magellanic Stream?*, ApJ, **887**, 19, 2019 (arXiv:1811.05991) [11 citations]
- 56 **Price-Whelan, A. M.**; Mateu, C.; Iorio, G.; Pearson, S. et al., *Kinematics of the Palomar 5 Stellar Stream from RR Lyrae Stars*, AJ, **158**, 223, 2019 (arXiv:1910.00595) [12 citations]
- 55 Chakrabarti, S.; Chang, P.; **Price-Whelan, A. M.**; Read, J. et al., *Antlia 2's Role in Driving the Ripples in the Outer Gas Disk of the Galaxy*, ApJ, **886**, 67, 2019 (arXiv:1906.04203) [7 citations]
- 54 Koppelman, H. H.; Helmi, A.; Massari, D.; **Price-Whelan, A. M.** et al., *Multiple retrograde substructures in the Galactic halo: A shattered view of Galactic history*, A&A, **631**, 2019 (arXiv:1909.08924) [28 citations]
- 53 Bonaca, A.; Conroy, C.; **Price-Whelan, A. M.**; Hogg, D. W., *Multiple Components of the Jhelum Stellar Stream*, ApJ, **881**, 2019 (arXiv:1906.02748) [13 citations]
- 52 Casey, A. R. et al. (incl. **APW**), *Tidal Interactions between Binary Stars Can Drive Lithium Production in Low-mass Red Giants*, ApJ, **880**, 125, 2019 (arXiv:1902.04102) [24 citations]
- 51 Erkal, D. et al. (incl. **APW**), *The total mass of the Large Magellanic Cloud from its perturbation on the Orphan stream*, MNRAS, **487**, 2685, 2019 (arXiv:1812.08192) [82 citations]
- 50 Bonaca, A.; Hogg, D. W.; **Price-Whelan, A. M.**; Conroy, C., *The Spur and the Gap in GD-1: Dynamical Evidence for a Dark Substructure in the Milky Way Halo*, ApJ, **880**, 38, 2019 (arXiv:1811.03631) [56 citations]
- 49 Rasskazov, A. et al. (incl. **APW**), *Hypervelocity Stars from a Supermassive Black Hole-Intermediate-mass Black Hole Binary*, ApJ, **878**, 17, 2019 (arXiv:1810.12354) [13 citations]
- 48 Koposov, S. E. et al. (incl. **APW**), *Piercing the Milky Way: an all-sky view of the Orphan Stream*, MNRAS, **485**, 4726, 2019 (arXiv:1812.08172) [41 citations]
- 47 **Price-Whelan, A. M.**; Goodman, J., *Binary Companions of Evolved Stars in APOGEE DR14: Orbital Circularization*, ApJ, **867**, 5, 2018 (arXiv:1804.06841) [13 citations]
- 46 De Rosa, G. et al. (incl. **APW**), *Velocity-resolved Reverberation Mapping of Five Bright Seyfert 1 Galaxies*, ApJ, **866**, 133, 2018 (arXiv:1807.04784) [20 citations]
- 45 Kado-Fong, E.; Greene, J. E.; Hendel, D.; **Price-Whelan, A. M.** et al., *Tidal Features at  $0.05 < z < 0.45$  in the Hyper Suprime-Cam Subaru Strategic Program: Properties and Formation Channels*, ApJ, **866**, 103, 2018 (arXiv:1805.05970) [21 citations]
- 44 Anderson, L.; Hogg, D. W.; Leistedt, B.; **Price-Whelan, A. M.** et al., *Improving Gaia Parallax Precision with a Data-driven Model of Stars*, AJ, **156**, 145, 2018 (arXiv:1706.05055) [20

- citations]
- 43 Astropy Collaboration; **Price-Whelan, A. M.**; Sipócz, B. M.; Günther, H. M. et al., *The Astropy Project: Building an Open-science Project and Status of the v2.0 Core Package*, AJ, **156**, 123, 2018 (arXiv:1801.02634) [1401 citations]
  - 42 Hendel, D. et al. (incl. **APW**), *SMHASH: anatomy of the Orphan Stream using RR Lyrae stars*, MNRAS, **479**, 570, 2018 (arXiv:1711.04663) [12 citations]
  - 41 **Price-Whelan, A. M.**; Bonaca, A., *Off the Beaten Path: Gaia Reveals GD-1 Stars outside of the Main Stream*, ApJ, **863**, 2018 (arXiv:1805.00425) [54 citations]
  - 40 **Price-Whelan, A. M.**; Hogg, D. W.; Rix, H.; De Lee, N. et al., *Binary Companions of Evolved Stars in APOGEE DR14: Search Method and Catalog of ~5000 Companions*, AJ, **156**, 18, 2018 (arXiv:1804.04662) [499 citations]
  - 39 Hayes, C. R. et al. (incl. **APW**), *Disk-like Chemistry of the Triangulum-Andromeda Overdensity as Seen by APOGEE*, ApJ, **859**, 2018 (arXiv:1805.03706) [12 citations]
  - 38 Bergemann, M. et al. (incl. **APW**), *Two chemically similar stellar overdensities on opposite sides of the plane of the Galactic disk*, Nature, **555**, 334, 2018 (arXiv:1803.00563) [37 citations]
  - 37 Morris, B. M. et al. (incl. **APW**), *astroplan: An Open Source Observation Planning Package in Python*, AJ, **155**, 128, 2018 (arXiv:1712.09631) [22 citations]
  - 36 Oh, S.; **Price-Whelan, A. M.**; Brewer, J. M.; Hogg, D. W. et al., *Kronos and Krios: Evidence for Accretion of a Massive, Rocky Planetary System in a Comoving Pair of Solar-type Stars*, ApJ, **854**, 138, 2018 (arXiv:1709.05344) [34 citations]
  - 35 Sheffield, A. A.; **Price-Whelan, A. M.**; Tzanidakis, A.; Johnston, K. V. et al., *A Disk Origin for the Monoceros Ring and A13 Stellar Overdensities*, ApJ, **854**, 47, 2018 (arXiv:1801.01171) [21 citations]
  - 34 Greco, J. P.; Greene, J. E.; **Price-Whelan, A. M.**; Leauthaud, A. et al., *Sumo Puff: Tidal debris or disturbed ultra-diffuse galaxy?*, PASJ, **70**, 2018 (arXiv:1704.06681) [14 citations]
  - 33 Goulding, A. D. et al. (incl. **APW**), *Galaxy interactions trigger rapid black hole growth: An unprecedented view from the Hyper Suprime-Cam survey*, PASJ, **70**, 2018 (arXiv:1706.07436) [70 citations]
  - 32 **Price-Whelan, A. M.**, *Gala: A Python package for galactic dynamics*, JOSS, **2**, 388, 2017 [53 citations]
  - 31 Alam, S. et al. (incl. **APW**), *The clustering of galaxies in the completed SDSS-III Baryon Oscillation Spectroscopic Survey: cosmological analysis of the DR12 galaxy sample*, MNRAS, **470**, 2617, 2017 (arXiv:1607.03155) [1068 citations]
  - 30 **Price-Whelan, A. M.**; Foreman-Mackey, D., *schwimmbad: A uniform interface to parallel processing pools in Python*, JOSS, **2**, 357, 2017 [12 citations]
  - 29 Pearson, S.; **Price-Whelan, A. M.**; Johnston, K. V., *Gaps and length asymmetry in the stellar stream Palomar 5 as effects of Galactic bar rotation*, Nature Astronomy, **1**, 633, 2017 (arXiv:1703.04627) [47 citations]
  - 28 Johnston, K. V.; **Price-Whelan, A. M.**; Bergemann, M.; Laporte, C. et al., *Disk Heating, Galactoseismology, and the Formation of Stellar Halos*, MDPI: galaxies, **5**, 44, 2017 (arXiv:1709.00491) [5 citations]

- 27 Li, T. S. *et al.* (incl. **APW**), *Exploring Halo Substructure with Giant Stars. XV. Discovery of a Connection between the Monoceros Ring and the Triangulum-Andromeda Overdensity?*, *ApJ*, **844**, 74, 2017 (arXiv:1703.05384) [24 citations]
- 26 Oh, S.; **Price-Whelan, A. M.**; Hogg, D. W.; Morton, T. D. *et al.*, *Comoving Stars in Gaia DR1: An Abundance of Very Wide Separation Comoving Pairs*, *AJ*, **153**, 257, 2017 (arXiv:1612.02440) [78 citations]
- 25 Sesar, B.; Fouesneau, M.; **Price-Whelan, A. M.**; Bailer-Jones, C. A. L. *et al.*, *A Probabilistic Approach to Fitting Period-luminosity Relations and Validating Gaia Parallaxes*, *ApJ*, **838**, 107, 2017 (arXiv:1611.07035) [36 citations]
- 24 **Price-Whelan, A. M.**; Hogg, D. W.; Foreman-Mackey, D.; Rix, H., *The Joker: A Custom Monte Carlo Sampler for Binary-star and Exoplanet Radial Velocity Data*, *ApJ*, **837**, 20, 2017 (arXiv:1610.07602) [35 citations]
- 23 Charisi, M.; Bartos, I.; Haiman, Z.; **Price-Whelan, A. M.** *et al.*, *A population of short-period variable quasars from PTF as supermassive black hole binary candidates*, *MNRAS*, **463**, 2145, 2016 (arXiv:1604.01020) [97 citations]
- 22 **Price-Whelan, A. M.**; Sesar, B.; Johnston, K. V.; Rix, H., *Spending Too Much Time at the Galactic Bar: Chaotic Fanning of the Ophiuchus Stream*, *ApJ*, **824**, 104, 2016 (arXiv:1601.06790) [27 citations]
- 21 Sesar, B.; **Price-Whelan, A. M.**; Cohen, J. G.; Rix, H. *et al.*, *Evidence of Fanning in the Ophiuchus Stream*, *ApJ*, **816**, 2016 (arXiv:1512.00469) [7 citations]
- 20 **Price-Whelan, A. M.**; Johnston, K. V.; Valluri, M.; Pearson, S. *et al.*, *Chaotic dispersal of tidal debris*, *MNRAS*, **455**, 1079, 2016 (arXiv:1507.08662) [35 citations]
- 19 Charisi, M.; Bartos, I.; Haiman, Z.; **Price-Whelan, A. M.** *et al.*, *Multiple periods in the variability of the supermassive black hole binary candidate quasar PG1302-102?*, *MNRAS*, **454**, 2015 (arXiv:1502.03113) [20 citations]
- 18 **Price-Whelan, A. M.**; Johnston, K. V.; Sheffield, A. A.; Laporte, C. F. P. *et al.*, *A reinterpretation of the Triangulum-Andromeda stellar clouds: a population of halo stars kicked out of the Galactic disc*, *MNRAS*, **452**, 676, 2015 (arXiv:1503.08780) [64 citations]
- 17 Sesar, B. *et al.* (incl. **APW**), *The Nature and Orbit of the Ophiuchus Stream*, *ApJ*, **809**, 59, 2015 (arXiv:1501.00581) [23 citations]
- 16 Alam, S. *et al.* (incl. **APW**), *The Eleventh and Twelfth Data Releases of the Sloan Digital Sky Survey: Final Data from SDSS-III*, *ApJS*, **219**, 12, 2015 (arXiv:1501.00963) [1420 citations]
- 15 Pearson, S.; Küpper, A. H. W.; Johnston, K. V.; **Price-Whelan, A. M.**, *Tidal Stream Morphology as an Indicator of Dark Matter Halo Geometry: The Case of Palomar 5*, *ApJ*, **799**, 28, 2015 (arXiv:1410.3477) [48 citations]
- 14 Andrews, J. J.; **Price-Whelan, A. M.**; Agüeros, M. A., *The Mass Distribution of Companions to Low-mass White Dwarfs*, *ApJ*, **797**, 2014 (arXiv:1412.0114) [17 citations]
- 13 **Price-Whelan, A. M.**; Hogg, D. W.; Johnston, K. V.; Hendel, D., *Inferring the Gravitational Potential of the Milky Way with a Few Precisely Measured Stars*, *ApJ*, **794**, 4, 2014 (arXiv:1405.6721) [37 citations]
- 12 Anderson, L. *et al.* (incl. **APW**), *The clustering of galaxies in the SDSS-III Baryon Oscillation*

- Spectroscopic Survey: baryon acoustic oscillations in the Data Releases 10 and 11 Galaxy samples*, MNRAS, **441**, 24, 2014 (arXiv:1312.4877) [1017 citations]
- 11 Ahn, C. P. et al. (incl. **APW**), *The Tenth Data Release of the Sloan Digital Sky Survey: First Spectroscopic Data from the SDSS-III Apache Point Observatory Galactic Evolution Experiment*, ApJS, **211**, 17, 2014 (arXiv:1307.7735) [791 citations]
  - 10 **Price-Whelan, A. M.**; Agüeros, M. A.; Fournier, A. P.; Street, R. et al., *Statistical Searches for Microlensing Events in Large, Non-uniformly Sampled Time-Domain Surveys: A Test Using Palomar Transient Factory Data*, ApJ, **781**, 35, 2014 (arXiv:1311.3683) [9 citations]
  - 9 **Price-Whelan, A. M.**; Johnston, K. V., *Spitzer, Gaia, and the Potential of the Milky Way*, ApJ, **778**, 2013 (arXiv:1308.2670) [27 citations]
  - 8 Astropy Collaboration et al. (incl. **APW**), *Astropy: A community Python package for astronomy*, A&A, **558**, 2013 (arXiv:1307.6212) [3657 citations]
  - 7 Dawson, K. S. et al. (incl. **APW**), *The Baryon Oscillation Spectroscopic Survey of SDSS-III*, AJ, **145**, 10, 2013 (arXiv:1208.0022) [1263 citations]
  - 6 Ahn, C. P. et al. (incl. **APW**), *The Ninth Data Release of the Sloan Digital Sky Survey: First Spectroscopic Data from the SDSS-III Baryon Oscillation Spectroscopic Survey*, ApJS, **203**, 21, 2012 (arXiv:1207.7137) [1036 citations]
  - 5 Eisenstein, D. J. et al. (incl. **APW**), *SDSS-III: Massive Spectroscopic Surveys of the Distant Universe, the Milky Way, and Extra-Solar Planetary Systems*, AJ, **142**, 72, 2011 (arXiv:1101.1529) [1447 citations]
  - 4 Aihara, H. et al. (incl. **APW**), *Erratum: "The Eighth Data Release of the Sloan Digital Sky Survey: First Data from SDSS-III"* <A href="/abs/2011ApJS..193...29A">(2011, ApJS, 193, 29)</A>, ApJS, **195**, 26, 2011 [51 citations]
  - 3 Blanton, M. R. et al. (incl. **APW**), *Improved Background Subtraction for the Sloan Digital Sky Survey Images*, AJ, **142**, 31, 2011 (arXiv:1105.1960) [257 citations]
  - 2 Aihara, H. et al. (incl. **APW**), *The Eighth Data Release of the Sloan Digital Sky Survey: First Data from SDSS-III*, ApJS, **193**, 29, 2011 (arXiv:1101.1559) [1060 citations]
  - 1 **Price-Whelan, A. M.**; Hogg, D. W., *What Bandwidth Do I Need for My Image?*, PASP, **122**, 207, 2010 (arXiv:0910.2375) [4 citations]

## Preprints & other

- 11 Katz, D. S. et al. (incl. **APW**), *Software Sustainability & High Energy Physics*, 2020 (arXiv:2010.05102)
- 10 Garavito-Camargo, N.; Besla, G.; Laporte, C. F. P.; **Price-Whelan, A. M.** et al., *Quantifying the impact of the Large Magellanic Cloud on the structure of the Milky Way's dark matter halo using Basis Function Expansions*, 2020 (arXiv:2010.00816)
- 9 Valluri, M.; **Price-Whelan, A. M.**; Snyder, S. J., *Detecting the Figure Rotation of Dark Matter Halos with Tidal Streams*, 2020 (arXiv:2009.09004)
- 8 Oladosu, A. et al. (incl. **APW**), *Meta-Learning for Anomaly Classification with Set Equivariant Networks: Application in the Milky Way*, 2020 (arXiv:2007.04459)
- 7 Hogg, D. W.; **Price-Whelan, A. M.**; Leistedt, B., *Data Analysis Recipes: Products of multivari-*

- ate Gaussians in Bayesian inferences*, 2020 ([arXiv:2005.14199](https://arxiv.org/abs/2005.14199))
- 6 Ness, M. et al. (incl. **APW**), *In Pursuit of Galactic Archaeology: Astro2020 Science White Paper*, 2019 ([arXiv:1907.05422](https://arxiv.org/abs/1907.05422))
  - 5 Buckley, M. R.; Hogg, D. W.; **Price-Whelan, A. M.**, *Applying Liouville's Theorem to Gaia Data*, 2019 ([arXiv:1907.00987](https://arxiv.org/abs/1907.00987)) [2 citations]
  - 4 The MSE Science Team et al. (incl. **APW**), *The Detailed Science Case for the Maunakea Spectroscopic Explorer*, 2019 edition, 2019 ([arXiv:1904.04907](https://arxiv.org/abs/1904.04907)) [24 citations]
  - 3 Breivik, K.; **Price-Whelan, A. M.**; D'Orazio, D. J.; Hogg, D. W. et al., *Stellar multiplicity: an interdisciplinary nexus*, 2019 ([arXiv:1903.05094](https://arxiv.org/abs/1903.05094)) [2 citations]
  - 2 Bergemann, M. et al. (incl. **APW**), *Stellar Astrophysics and Exoplanet Science with the Maunakea Spectroscopic Explorer (MSE)*, 2019 ([arXiv:1903.03157](https://arxiv.org/abs/1903.03157)) [2 citations]
  - 1 **Price-Whelan, A. M.**; Oh, S.; Spergel, D. N., *Spectroscopic confirmation of very-wide stellar binaries and large-separation comoving pairs from Gaia DR1*, 2017 ([arXiv:1709.03532](https://arxiv.org/abs/1709.03532)) [14 citations]

## Grants and observing

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*Cold Dark Matter and the GD-1 Stellar Stream*, Hubble Space Telescope, Cycle 27, 2019

*Spectroscopic follow-up of a young cluster near the Leading Arm of the Magellanic System*, Clay Telescope, MIKE, 2019

*Three-dimensional kinematics of the GD-1 stellar stream*, MMT 6.5m, 2018

*Comoving stars in Gaia DR1*, Hiltner Telescope, MDM, 2017

*TRACSSS-2: Tracing More Cold Stellar Streams with Spitzer*, Spitzer mission, Cycle 13, 2016

*The Triangulum-Andromeda stellar clouds: a population of halo stars kicked out of the Galactic disk?*, Hiltner Telescope, MDM, 2015

*Spitzer Merger History and Shape of the Galactic Halo*, Spitzer mission, Cycle 10, 2014

*Gaia, Spitzer, and the potential of the Milky Way*, NASA theory grant, 2014–2016

Sigma Xi Grants in Aid of Research, 2013

*Probing the Milky Way's dark matter halo with RR Lyraes*, Hiltner Telescope, MDM, 2013

## Honors and awards

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2020 Blavatnik Regional Awards, Winner in Physical Sciences and Engineering (2020)

Dr. Pliny A. and Margaret H. Price Prize in Cosmology and AstroParticle Physics (2015)

NSF Graduate Research Fellowship (2012–2016)

Survey architect, SDSS-III (2011–2014)

Phi Beta Kappa, Beta of New York (2010–2016)

Summa cum laude, New York University (2010)

Samuel F.B. Morse Medal, awarded for excellence in physics (2010)

## Selected recent presentations

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*Mapping Dark Matter with Stellar Streams: Signatures of Dark Matter Substructure*, CCPP, New York University, 2020 (colloquium)

*Mapping Dark Matter with Stellar Streams: Imprints of Galactic Dynamical Phenomena*, CCA, Flatiron Institute, 2020 (colloquium)

*Mapping Dark Matter with Stellar Streams*, LSA, University of Michigan, 2020 (colloquium)

*Discovery and characterization of a recent star formation event in the Magellanic Leading Arm*, AAS, Honolulu, 2020 (contributed talk and press conference)

*Discovery and characterization of a recent star formation event in the Magellanic Leading Arm*, A synoptic view of the Magellanic Clouds, ESO Garching 2019 (contributed talk)

*A detailed look at the GD-1 stellar stream*, KITP, Santa Barbara, 2019 (contributed talk)

*The Milky Way as a benchmark*, UCONN, Connecticut, 2019 (colloquium)

*The Milky Way as a benchmark*, Princeton/IAS, Princeton, 2019 (colloquium)

*The GD-1 stream and dark matter around the Milky Way*, AAS, Seattle, 2019 (contributed talk)

*The Dynamic Milky Way in the Gaia Era*, University of Arizona, Arizona, 2018 (colloquium)

*The Dynamic Milky Way in the Gaia Era*, Princeton/IAS, Princeton, 2018 (colloquium)

*A disk origin for inner stellar halo structures*, Stellar halos, Heidelberg, 2018 (contributed talk)

*An Overview of the Astropy Project*, Python in Astronomy, NYC, 2018 (invited keynote)

*Binary star science with many targets, few epochs*, SnowPAC, Utah, 2018 (conference)

*The Galactic bar and its effect on stellar streams*, University of Kentucky, 2018 (seminar)

*Comoving stars in the Gaia era*, HAA, NRC-Herzberg, 2018 (seminar)

*Comoving stars in the Gaia era*, University of British Columbia, 2018 (colloquium)

*Fitting a straight line to data*, Computational Physics Workshop, Princeton, 2017 (invited)

## Open source development

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Core contributor to the [Astropy](#) project and maintainer of [Astropy Tutorials](#)

Core developer of [gala](#), [schwimmbad](#), [D3PO](#),

Contributor to [matplotlib](#), [emcee](#), [ccdproc](#)

## Student advising

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*Princeton undergraduates*: Samuel Moore, Bethlee Lindor

*Columbia undergraduates*: Tze P. Goh, Adrian Meyers

*Summer students*: Cameron Jackson (NSBP Scholar)

*Google Summer of Code*: Manan Agarwal, Jazmin Berlanga, Brett Morris

*Graduate students:* Sarah Pearson (Columbia, 2016–2017; now postdoc at Flatiron Institute), Semyeong Oh (Princeton, 2016–2018; now postdoc at Cambridge), Tomer Yavetz (Columbia, 2018–), Nora Shipp (U Chicago, 2019–).

## Teaching

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Lecturer, breakout leader, participant at Astro Hack Week (2014–2018)  
*Data science seminar*, co-organized with Peter Melchior, 2018, Princeton University  
*PHY121: Intro to Astronomy*, Prison Teaching Initiative, Fort Dix Correctional Facility  
*AST 542: Statistics and Machine Learning*, Co-instructor, 2017, Princeton University  
*Galaxies*, Teaching assistant, 2014, Columbia University  
*Stars, Planets, and Galaxies*, Lab instructor, 2013, Columbia University  
*Earth, Moon, and Planets*, Lab instructor, 2012, Columbia University  
*Stars, Planets, and Galaxies*, Teaching assistant, 2012, Columbia University

## Workshop and meeting organization

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Co-organizer of the [Gaia sprints](#), 2016–present  
Instructor (Astropy) at [PyData NYC](#), 2017  
Instructor (Machine Learning) at [AstroHackWeek](#), 2017  
Co-organizer of [SciCoder workshop](#), 2011–2013, 2015  
[AstroHackNY](#), NYC astronomy & statistics group meetings, (organizer, 2014-2015)  
[NYCastroML](#), machine learning and statistics group meetings, (co-organizer, 2013-2014)

## Public outreach

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Volunteer with the Prison Teaching Initiative, 2017  
*The bar at the center of the Galaxy*, 2016, public outreach talk, Astronomy on Tap, NYC  
*Galactic synthesizers*, 2015, public outreach talk, Columbia University, NYC  
*Dark matter*, 2015, public outreach talk, [100% Outer Space](#), Silent Barn, Brooklyn, NY  
Organizer for [Astronomy on Tap](#) (uptown), 2013-2014, public outreach talks at bars in NYC  
*Light*, 2012, public outreach talk for middle school girls, [astro4girls](#), Ridgefield Library  
Member of [Rooftop variables](#), 2011–2016, Isaac E. Young Middle School, New Rochelle, NY (partner teacher: Scott Misner)  
Roof captain and manager, 2011–2016, bi-weekly events for [Columbia Astronomy outreach](#)



## Professional services & activities

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Referee: MNRAS, ApJ, A&A, Phys. Rev. L, Phys. Rev. D

Member: American Astronomical Society

TACs: NASA, NOAO