

# Adrian M. Price-Whelan — Curriculum Vitae

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## Education

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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: 48 — first author: 15 — citations: 9988 — h-index: 21 (2019-03-17)

### Refereed

- 48 Koposov, S. E. *et al.* (incl. **APW**), *Piercing the Milky Way: an all-sky view of the Orphan Stream*, MNRAS, 457, 2019 ([arXiv:1812.08172](https://arxiv.org/abs/1812.08172)) [3 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](https://arxiv.org/abs/1804.06841))
- 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](https://arxiv.org/abs/1807.04784)) [3 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](https://arxiv.org/abs/1805.05970)) [4 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](https://arxiv.org/abs/1706.05055)) [14 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](https://arxiv.org/abs/1801.02634)) [296 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](https://arxiv.org/abs/1711.04663)) [10 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](https://arxiv.org/abs/1805.00425)) [16 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](https://arxiv.org/abs/1804.04662)) [19 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](https://arxiv.org/abs/1805.03706)) [2 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) [14 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) [10 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) [15 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) [9 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) [8 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) [24 citations]
- 32 **Price-Whelan, A. M.**, *Gala: A Python package for galactic dynamics*, *JOSS*, **2**, 388, 2017 [13 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) [449 citations]
- 30 **Price-Whelan, A. M.**; Foreman-Mackey, D., *schwimmbad: A uniform interface to parallel processing pools in Python*, *JOSS*, **2**, 357, 2017 [4 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) [20 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) [4 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) [14 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) [35 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) [30 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) [17 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) [53 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) [14 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) [3 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) [22 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) [15 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) [43 citations]
- 17 Sesar, B. *et al.* (incl. **APW**), *The Nature and Orbit of the Ophiuchus Stream*, ApJ, **809**, 59, 2015 (arXiv:1501.00581) [19 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) [1028 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) [40 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) [15 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) [29 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) [823 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) [696 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) [7 citations]
- 9 **Price-Whelan, A. M.**; Johnston, K. V., *Spitzer, Gaia, and the Potential of the Milky Way*, ApJ, **778**, 2013 (arXiv:1308.2670) [25 citations]
- 8 Astropy Collaboration *et al.* (incl. **APW**), *Astropy: A community Python package for astronomy*, A&A, **558**, 2013 (arXiv:1307.6212) [1811 citations]
- 7 Dawson, K. S. *et al.* (incl. **APW**), *The Baryon Oscillation Spectroscopic Survey of SDSS-III*, AJ,

- 145, 10, 2013 ([arXiv:1208.0022](#)) [977 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](#)) [919 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](#)) [1205 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 [44 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](#)) [174 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](#)) [966 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

- 6 Casey, A. R. et al. (incl. **APW**), *Tidal interactions between binary stars drives lithium production in low-mass red giants*, 2019 ([arXiv:1902.04102](#))
- 5 Erkal, D. et al. (incl. **APW**), *The total mass of the Large Magellanic Cloud from its perturbation on the Orphan stream*, 2018 ([arXiv:1812.08192](#)) [3 citations]
- 4 **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?*, 2018 ([arXiv:1811.05991](#)) [2 citations]
- 3 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*, 2018 ([arXiv:1811.03631](#)) [6 citations]
- 2 Rasskazov, A. et al. (incl. **APW**), *Hypervelocity Stars from a Supermassive Black Hole-Intermediate Mass Black Hole binary*, 2018 ([arXiv:1810.12354](#))
- 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](#)) [10 citations]

## Grants and observing

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*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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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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*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

*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–)

## 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  
Member: American Astronomical Society  
TACs: NASA, NOAO