

REBEKAH ILENE DAWSON — CURRICULUM VITAE

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CURRENT POSITION

Pennsylvania State University, University Park, Pennsylvania, USA

Assistant Professor of Astronomy & Astrophysics, 01/2016—06/2021

Shaffer Career Development Assistant/Associate Professor of Science, 08/2020—present

Associate Professor of Astronomy & Astrophysics, 06/2021—present

Astronomy & Astrophysics Associate Head for the Graduate Program, 08/2021 — present

PREVIOUS EXPERIENCE

Miller Institute for Basic Research in Science, Berkeley, California, USA

Miller Research Fellow, University of California Berkeley Department of Astronomy,
09/2013-12/2015

EDUCATIONAL BACKGROUND

Harvard University, Cambridge, Massachusetts, USA

Ph.D. Astronomy & Astrophysics (2013), **A.M.** Astronomy (2011)

Advisor: Ruth Murray-Clay, Thesis title: *On the Migratory Behavior of Planetary Systems*

Wellesley College, Wellesley, MA, USA

B.A. Astrophysics (2009), summa cum laude; departmental honors in Astrophysics

SELECTED HONORS AND AWARDS

- American Astronomical Society Helen B. Warner Prize (2021)
- American Astronomical Society Division of Planetary Science Harold C. Urey Prize (2020)
- Alfred P. Sloan Research Fellowship in Physics (2018)
- Bok Prize, Harvard University Department of Astronomy (2018)
- American Astronomical Society Annie Jump Cannon Award (2017)
- Fireman Award, Harvard University Department of Astronomy (2013)
- Block Award, Aspen Center for Physics (2013)
- American Astronomical Society Rodger Doxsey Travel Prize (2013)
- National Science Foundation Graduate Research Fellowship (2010-2013)
- American Astronomical Society Division on Dynamical Astronomy, student stipend award (2011)
- Certificate of Distinction in Teaching, Harvard University (2011)
- American Astronomical Society, Chambliss Student Astronomy Achievement (2010)
- Charles Duncan Prize in Astronomy, Wellesley College (2009)
- Phyllis Flemming Prize in Physics, Wellesley College (2009)
- Pi Beta Kappa national academic honors society (2009)
- Sigma Xi national scientific research honors society (2009)
- Barry M. Goldwater Scholarship (national science scholarship) (2007-2009)

PUBLICATIONS (self and advisees in **bold**)

First author:

1. *Precise transit and radial-velocity characterization of a resonant pair: a warm Jupiter TOI-216c and eccentric warm Neptune TOI-216b*, **Dawson, R.**, Huang, Brahm, et al. 2021, *Astronomical Journal*, 59, 223
2. *Robustly detecting changes in warm Jupiters' transit impact parameters*, **Dawson, R.** 2020, *Astronomical Journal*, 159, 223
3. *TOI-216b and TOI-216c: Two warm, large exoplanets in or slightly wide of the 2:1 orbital resonance*, **Dawson, R.**, Huang, Lissauer, & 32 others 2019, *Astronomical Journal*, 158, 65
4. *Origins of Hot Jupiters* (invited, refereed review), **Dawson, R.** and Johnson, J. 2018, *Annual Reviews in Astronomy & Astrophysics*, 56, 175
5. *Tightly-Packed Planetary Systems* (invited, refereed review), **Dawson, R.** 2017, *Springer Major References, The Handbook of Exoplanets*, 18 pp
6. *Correlations between compositions and orbits established by the giant impact era of planet formation*, **Dawson, R.**, Lee, E., & Chiang, E. 2016, *ApJ*, 822, 54
7. *A metallicity recipe for rocky planets*, **Dawson, R.**, Chiang, E., & Lee, E. 2015, *MNRAS*, 453, 1571
8. *A paucity of proto-hot Jupiters on supereccentric orbits*, **Dawson, R.**, Murray-Clay, R.A., & Johnson, J.A. 2015, *Astrophysical Journal*, 798, 66
9. *A Class of Warm Jupiters with Mutually Inclined, Apsidally Misaligned, Close Friends*, **Dawson, R.** & Chiang, E. 2014, *Science*, 346, 6206, pp. 212-216
10. *On the tidal origin of hot Jupiter stellar obliquity trends*, **Dawson, R.**, 2014, *Astrophysical Journal Letters*, 790, L31
11. *Large eccentricity, low mutual inclination: the three-dimensional architecture of a hierarchical system of giant planets*, **Dawson, R.**, Johnson, J.A., Fabrycky, D., Foreman-Mackey, D., Murray-Clay, R., Bouchave, L., Cargile, P., Clubb, K., Fulton, B., Hebb, L., Howard, A., Huber, H., Shporer, A., Valenti, J., 2014, *Astrophysical Journal*, 791, 89
12. *Giant planets orbiting metal-rich stars show signatures of planet-planet interactions*, **Dawson, R.** & Murray-Clay, R.A., 2013, *ApJL*, 767, L14
13. *The Photoeccentric Effect and Proto-Hot Jupiters II. KOI-1474.01, a candidate eccentric planet perturbed by an unseen companion*, **Dawson, R.**, Johnson, J.A., Morton, T., Crepp, J., Fabrycky, D., Murray-Clay, R., & Howard, A. 2012, *Astrophysical Journal*, 761, 163
14. *The Photoeccentric Effect and Proto-Hot Jupiters I. Measuring photometric eccentricities of individual transiting planets*, **Dawson, R.** & Johnson, J.A. 2012, *Astrophysical Journal*, 756, 122.
15. *Neptune's wild days: constraints from the eccentricity distribution of the classical Kuiper belt*, **Dawson, R.** & Murray-Clay, R. 2012, *Astrophysical Journal*, 750, 43.
16. *On the misalignment of the directly imaged planet β Pictoris b with the system's warped inner disk*, **Dawson, R.**, Murray-Clay, R., & Fabrycky, D., 2011, *Astrophysical Journal Letters*, 743, L17.
17. *Radial velocity planets de-aliased. A new, short period for Super-Earth 55 Cnc e*, **Dawson, R.** & Fabrycky, D., 2010, *Astrophysical Journal*, 722, 937-953.

Second author:

Accepted:

18. *Stellar obliquities in exoplanetary systems*, Albrecht, S., **Dawson, R.**, & Winn, J., invited review, PASP, accepted/in press

Published:

19. *Nature vs. Nurture: Investigating the Effects of Measurement Uncertainties in the Assessment of Potential Trends Between Planetary and Stellar Properties*, **Safsten, E. & Dawson, R.**, AJ, 163, 188
20. *Observable Predictions from Perturber-coupled High-eccentricity Tidal Migration of Warm Jupiters*, **Jackson, Dawson, Shannon,** & Petrovich 2021, AJ, 161, 200
21. *Hot Jupiters: Origins, Structure, Atmospheres* (invited review), Fortney, J., **Dawson, R.**, & Komacek, T. 2021, JGRE, 126, e06629
22. *Chains of Planets in Mean Motion Resonances Arising from Oligarchic Growth*, **Morrison, S., Dawson, R., & MacDonald, M.** 2020, ApJ, 904, 157
23. *Nature vs. nurture: a Bayesian framework for assessing apparent correlations between planetary orbital properties and stellar ages*, **Safsten, E., Dawson, R.,** & Wolfgang, A., *Astronomical Journal*, 140, 214
24. *A significant mutual inclination between the planets within the π Mensae system*, de Rosa, R., **Dawson, R.** & E. Nielsen, *Astronomy & Astrophysics*, 640, A73
25. *Forming Diverse Super-Earth Systems in Situ*, **MacDonald, M., Dawson, R., Morrison, S.,** Lee, E., & Khandelwal, A. 2020, ApJ, 891, 20
26. *Debris Disks in Multi-Planet Systems: Are Our Inferences Compromised by Unseen Planets?* **Dong, J., Dawson, R., Shannon, A.,** and **Morrison, S.** 2020, ApJ, 889, 47
27. *The Origin of Kepler-419b: A Path to Tidal Migration Via Four-body Secular Interactions*, **Jackson J., Dawson, R.,** and **Zalesky, J.** 2019, AJ, 157, 166
28. *Three Pathways for Observed Resonant Chains*, **MacDonald M. & Dawson, R.** 2018, *Astronomical Journal*, 156, 5.
29. *Limits on the number of primordial Scattered Disk objects at Pluto mass and higher from the absence of their dynamical signatures on the present day trans-Neptunian Populations*, **Shannon, A. & Dawson, R.** 2018, MNRAS, 480. 1870.
30. *Stability and Occurrence Rate Constraints on the Planetary Sculpting Hypothesis for "Transitional" Disks*, Dong, R. & **Dawson, R.** 2016, *Astrophysical Journal*, 825, 77
31. *Resonances, chaos, and short-term interactions among the inner Uranian satellites*, French, R.G., **Dawson, R.,** & Showalter, M. 2015, *Astronomical Journal*, 149, 142
32. *Advances in Exoplanet Science from Kepler*, Lissauer, J., **Dawson, R.,** & Tremaine, S. 2014, *Nature*, 513, 336
33. *Neptune on tiptoes: dynamical histories that preserve the cold classical Kuiper belt*, Wolff, S., **Dawson, R.** & Murray-Clay R. 2012, *Astrophysical Journal*, 746, 171

Third+ author:

34. *NEID Rossiter-McLaughlin Measurement of TOI-1268b: A Young Warm Saturn Aligned with Its Cool Host Star*, **Dong, J.,** Huang, C., Zhou, G., **Dawson, R.,** et al., ApJL, 926, 7
35. *TOI-3362b: A Proto Hot Jupiter Undergoing High-eccentricity Tidal Migration*, **Dong, J.,** Huang, C., Zhou, G., **Dawson, R.,** et al. 2021, ApJL, 920, 16
36. *A pair of warm giant planets near the 2:1 mean motion resonance around the K-dwarf star TOI-2202*, Trifonov, Brahm, Espinoza, & 35 others incl. **Dawson R.**, *Astronomical Journal*, 162, 283
37. *A Preponderance of Perpendicular Planets*, Albrecht, Marcussen, Winn, **Dawson,** & Knudstrup, *Astrophysical Journal Letters*, 916, 1
38. *Warm Jupiters in TESS Full-Frame Images: A Catalog and Observed Eccentricity Distribution for Year 1*, **Dong, Huang, Dawson,** et al., *Astrophysical Journal Supplements*, 255, 6
39. *A backward-spinning star with two coplanar planets*, Hjorth, M., Albrecht, S., Hirano, T., Winn, J., **Dawson, R.,** Zanazzi, J., Knudstrup, E., & Bato, B. 2021, PNAS, 118, 2017418118

40. *The Habitable Zone Planet Finder reveals a high mass and low obliquity for the young Neptune K2-25b*, Stefansson, G., Mahadevan, S., Manet, M., & 27 others incl. **Dawson, R.** 2020, *Astronomical Journal*, 160, 192
41. *A warm Jupiter transiting an M dwarf: A TESS single transit event confirmed with the Habitable-zone Planet Finder*, Cañas, C., Stefansson, G., Kanodia, S. & 30 others incl. **Dawson, R.** 2020, *Astronomical Journal*, 160, 147
42. *OSSOS: Constraining migration models with the 2:1 resonance using the Outer Solar System Origin Survey*, Y. T. Chen, B. Gladman, K. Vok, & 13 others et al. incl. **Dawson, R.** 2019, *Astronomical Journal*, 158, 214
43. *The orbital eccentricity of small planet systems*, van Eylen, V., Albrecht, S., Huang, X. & 8 others incl. **Dawson, R.** 2019, *Astronomical Journal*, 157, 61
44. *The Gemini Planet Imager Exoplanet Survey: Giant Planet and Brown Dwarf Demographics from 10—100 AU*, E. Nielsen, R. de Rosa, Bruce Macintosh, & 65 others incl. **Dawson, R.** 2018, *Astronomical Journal*, 158, 13
45. *Dynamical Constraints on the HR 8799 Planets with GPI*, Wang, J., Graham, J., **Dawson, R.** & 52 others 2018, *Astronomical Journal*, 156, 192
46. *OSSOS IX: TWO OBJECTS IN NEPTUNE’S 9:1 RESONANCE – IMPLICATIONS FOR RESONANCE STICKING IN THE SCATTERING POPULATION*, Volk, K., Murray-Clay, R., Gladman, B., & 14 others incl. **Dawson, R.** 2018, *Astronomical Journal*, 155, 260
47. *OSSOS: VII. 800+ trans-Neptunian objects --- the complete data release*, Bannister, M., Gladman, B., Kavelaars, J., & 43 others incl. **Dawson, R.**, 2018, *Astrophysical Journal Supplements*, 236, 18
48. *Discovery of a Substellar Companion to the Nearby Debris Disk Host HR 2562*, Konopacky, Q., Rameau, J., Duchene, G., & 54 others incl. **Dawson, R.**, 2016, *Astrophysical Journal Letters*, 829, L4
49. *β Pictoris’s Inner Disk in Polarized Light and New Orbital Parameters for β Pictoris b*, Millar-Blanchaer, M., Graham, J., Pueyo, L., Kalas, P., **Dawson, R.**, & 58 others, 2015, *Astrophysical Journal*, 811, 18
50. *Discovery and spectroscopy of the young Jupiter-like planet 51 Eri b with the Gemini Planet Imager*, Macintosh, B., Graham, J., Barman, T., & 85 others incl. **Dawson, R.**, 2015, *Science*, 350, 64
51. *How low can you go? The photoeccentric effect for planets of various sizes*, Price, E., Rogers, L., Johnson, J.A., & **Dawson, R.**, 2015, *Astrophysical Journal*, 799, 17
52. *A Combined Very Large Telescope and Gemini Study of the Atmosphere of the Directly Imaged Planet, β Pictoris b*, Currie, T, Burrows, A., Madhusudhan, N., & 10 others incl. **Dawson, R.**, 2013, *Astrophysical Journal*, 776, 15
53. *Kepler-63b: A Giant Planet in a Polar Orbit around a Young Sun-like Star*, Sanchis-Ojeda, R., Winn, J. N., Marcy, G. W., & 19 others incl. **Dawson, R.**, 2013, *Astrophysical Journal*, 775, 54
54. *A Super-Earth transiting a naked eye star*, Winn, J., Matthews, J., **Dawson, R.**, & 11 others, 2011, *Astrophysical Journal Letters*, 737, L18.

RESEARCH SUPPORT

- NASA Exoplanet Research Program (XRP), *Assessing the Hallmarks of Migration and In Situ Formation in Multi-Exoplanet Systems*, **PI: Rebekah Dawson**, CO-Is: Sarah Morrison, Angie Wolfgang, \$402,596, 2018-2021

- NASA TESS Guest Investigator Program, *Detection and Characterization of Warm Jupiters*, **PI: Rebekah Dawson**, CO-Is: Chelsea Huang, Billy Quarles, Jack Lissauer, Thomas Beatty, \$50,000, 2018-2020
- ORAU Ralph E. Powe Junior Faculty Enhancement Award, *Debris Disk as Signposts in Multi-Planet Systems*, **PI: Rebekah Dawson**, \$10,000, 2018-2019
- NASA Exoplanet Research Program (XRP), *Warm Large Exoplanets*, **PI: Rebekah Dawson**, CO-Is: Billy Quarles, Jack Lissauer, \$326,019, 2016-2018

INVITED TALKS

Invited Colloquia, Seminars, Lunch Talks

1. Johns Hopkins University and Space Telescope Science Institute Joint Colloquium, March 16, 2022
2. University of Arizona Theoretical Astrophysics Program Colloquium, February 14, 2022
3. University of Minnesota Colloquium, February 2, 2022
4. University of Maryland Colloquium, September 29, 2021
5. Konkoly Observatory Astronomy Seminar, June 3, 2021
6. Cambridge Exoplanet Seminar, May 26, 2020
7. NExSS Seminar, February 19, 2020
8. McGill Space Sciences Seminar, November 26, 2019
9. UCSB Lunch Talk, June 4, 2019
10. Harvard Colloquium, March 28, 2019
11. Aarhus Stellar Astrophysics Centre Seminar, May 11th, 2018
12. Columbia Colloquium, March 21st, 2018
13. University of Chicago Colloquium, March 7th, 2018
14. Stochastic Modeling and Computing Seminar, Penn State Statistics, February 22nd, 2018
15. CIERA Seminar, February 13th, 2018
16. NASA JPL, January 4th, 2018
17. KIPAC Astrophysics Colloquium, May 18th, 2017
18. LUNVOIR Seminar, June 29th, 2016
19. University of Pittsburgh Seminar, April 8th, 2016
20. Yale Colloquium, March 31st, 2016
21. Lowell Observatory Colloquium, March 10th, 2016
22. University of Nevada at Las Vegas Seminar, February 5th, 2016
23. Carnegie DTM Seminar, January 28th, 2016
24. Carnegie Observatories Colloquium, December 8th, 2015
25. Harvard ITC Colloquium, October 29th, 2015
26. Harvard ITC Lunch, October 29th, 2015
27. SETI-Ames Dynamics Lunch, October 21st, 2015
28. ETH Zurich Institute for Astronomy Seminar, October 13th, 2015
29. University of Colorado Boulder Astrophysical and Planetary Sciences Colloquium, September 21st, 2015
30. UC Berkeley Astronomy Colloquium, September 14th, 2015
31. UC Berkeley Department Lunch, September 14th, 2015
32. CITA Seminar, April 22nd, 2015
33. UC Davis Geology Seminar, April 8th, 2015

34. Thunch Talk, Princeton, November 20th, 2014
35. Astronomy Colloquium, Caltech, November 5th, 2014
36. Astronomy Seminar, Penn State, October 30th, 2014
37. Astrophysics Colloquium, MIT, October 28th, 2014
38. Astronomy Colloquium, University of Illinois, September 30th, 2014
39. Astronomy Colloquium, University of Washington, June 5th, 2014
40. Center for the Origin, Dynamics, and Evolution of the Planets Seminar, University of California Santa Cruz, May 30th, 2014
41. Astronomy Colloquium, University of California Santa Cruz, March 12th, 2014
42. Astrophysics Seminar, New York University, March 7th, 2014
43. SETI Institute Seminar, SETI Institute, January 21st, 2014
44. Astronomy Colloquium, University of California Los Angeles, December 4th, 2013.
45. Seminar, University of Bern, July 22nd, 2013
46. Center for Astrophysics and Habitable Worlds Seminar, Penn State, March 15th, 2013
47. Seminar, MPIA Heidelberg, June 9th 2011

Invited Conference Talks

43. *Multi-Faceted Planetary Systems*, American Astronomical Society plenary, June 2022
44. *Origins of Inner Solar Systems*, American Astronomical Society Division of Planetary Science, October 2021
45. *Origins of Hot Jupiters*, ESO Exoplanet Atmospheres Workshop, August 27, 2021
46. *Establishing the Diversity of Planetary System Architectures*, Exoplanets III, July 29, 2020.
47. *Beyond Eta Earth: Exoplanets as a Window on the History and Habitability of Planetary Systems* (keynote), 40th Annual Central Pennsylvania Consortium, June 19, 2020
48. *Beyond Eta Earth: Exoplanets as a Window on the History and Habitability of Planetary Systems*, Gordon Origins of Life Conference, January 19, 2020
49. *The Future of Exoplanet Science*, CEHW 10th Anniversary, April 2nd, 2019
50. *Art and Architecture of Planetary Systems*, Transiting Exoplanets Conference, Keele, UK, July 18th, 2017
51. *Inner Solar Systems* (invited plenary), American Astronomical Society, Austin, TX, June 5th, 2017
52. *Forming small planets around small stars*, Opportunity M workshop, Cambridge, Massachusetts, August 29th, 2016
53. *Introduction to Exoplanet Data*, Program on Statistical, Mathematical and Computational Methods for Astronomy Opening Workshop, Research Triangle Park, North Carolina, August 22nd, 2016
54. *The critical role of residual gas in establishing planetary orbits and compositions.*, Exoplanets 1, Davos, Switzerland, July 6th, 2016.
55. *Characterizing Kepler's transiting planets in the presence of correlated noise.*, Statistical Challenges in Modern Astronomy VI, Pittsburgh, Pennsylvania, June 9th, 2016.
56. *Time Domain Challenges for Exoplanets.*, AAS Special on Time Domain Methodologies, Kissimmee, Florida, January 2016.
57. *Planetary Systems and their Evolution.*, U.S. Radio/Millimeter/Submillimeter Science Futures in the 2020s, Chicago, Illinois, December 15th-17th, 2015.
58. *New Views on Inner Solar Systems and Extreme Planets* (invited plenary), American Astronomical Society Division for Planetary Science Meeting, National Harbor, District of Columbia, November 8-13, 2015.

59. *Giant planet formation and migration scenarios* (review talk), OHP 2015 : Twenty years of giant exoplanets, Saint-Michel-l'Observatoire, France, October 5-9, 2015.
60. *The interplay between aliasing and stellar activity*, the Extreme Precision Radial Velocities Workshop, New Haven, Connecticut, July 5-8, 2015.
61. *Planet Migration and Its Collateral Effects* (Discussion Leader), Gordon Conference on the Origins of Solar Systems, Mount Holyoke, Massachusetts, June 28-July 3, 2015.
62. *TTV Planets: Farm to Table*, KITP: Physics of Exoplanets, Santa Barbara, California, February 23-27, 2015.
63. *Warm Jupiters as failed hot Jupiters*, AAS Special on Short Period Planets, Seattle, Washington, January 2015.
64. *The role of metallicity in establishing giant planet dynamics*, Towards Other Earths II: The Planet-Star Connection, Porto, Portugal, September 15th-19th, 2014.
65. *The Legacy of Giant Planet Dynamical Histories*, Exoplanets in the Post-Kepler Era, Cambridge, Massachusetts, May 20th-21st, 2013.
66. *Upheaval in Systems of Giant Planets*, Women in AeroSpace Symposium, Cambridge, Massachusetts, April 17th-19th, 2013.

CONTRIBUTED PRESENTATIONS

Contributed Seminars and Lunch Talks

1. *Measuring Eccentricities from Light Curves*, KITP Seminar, May 14, 2019.
2. *Hallmarks of Migration*, Penn State Tuesday Lunch, February 28, 2017.
3. *Origins of Planetary Systems*, Penn State Tuesday Lunch, April 12th, 2016.
4. *Lessons from Exceptional Exoplanets*, UC Berkeley Miller Lunch, October 20th, 2015.
5. *Insights from Exoplanet Exceptions*, KITP Physics of Earths Workshop, December 5th, 2015.
6. *The astronomy of exoplanets*, UC Berkeley Astronomy Department Lunch, October 9th, 2014.
7. *New Constraints on Planet Formation: A Tale of Two Conferences*, UC Berkeley Center for Integrative Planetary Science Seminar, September 24th, 2014.
8. *Tidal dissipation of hot Jupiter spin-orbit alignment*, UC Berkeley Astronomy Department Lunch, April 29th, 2014.
9. *Planetary tidal migration*, Center for Integrative Planetary Science Seminar, UC Berkeley, November 18th, 2013.
10. *The Legacy of Giant Planet Dynamical Histories in the Post-Kepler Era*, UC Berkeley Astronomy Department Lunch, October 17th, 2013.
11. *The origin of hot Jupiters*, Center for Integrative Planetary Science Seminar, UC Berkeley, October 9th, 2013.
12. *On the Migratory Behavior of Planetary Systems*, Raytheon Technical Seminar Series, July 10th, 2013.
13. *The search for super-eccentric proto-hot Jupiters*, Planet Lunch, Harvard CfA, January 22nd, 2013.
14. *Some assembly required: Nature's instruction booklet for planetary migration*, Wunch Talk, Princeton, December 5th, 2012
15. *Neptune's Wild Days: Evidence from the Classical Kuiper Belt*, Institute for Advanced Study Bahcall Lunch, December 4th, 2012.
16. *Radial velocities de-aliased*, Princeton Exoplanets Lunch, December 3rd, 2012.
17. *A paucity of proto-hot Jupiters on super-eccentric orbits*, ITC Lunch, November 28th, 2012.
18. *Some assembly required: Nature's instruction booklet for planetary migration*, Planet and Star Formation Seminar, University of California Berkeley, November 7th, 2012

19. *Some assembly required: Nature's instruction booklet for planetary migration*, Theoretical Astrophysics Program Colloquium, University of Arizona Tucson, October 22nd, 2012
20. *Some assembly required: Nature's instruction booklet for planetary migration*, CIERA Special Seminar, Northwestern, October 4th, 2012
21. *The Big Planet that Couldn't: The Mystery of the Warped Disk Beta Pictoris*, Graduate Predoc Forum, November 16th, 2011.
22. *Constraints on the Dynamical History of the Solar System*, ITC Lunch, Harvard CfA, April 1st, 2011.

Contributed Conference Talks

23. *Precise Characterization of a 2:1 Resonant Pair: The Warm Jupiter TOI-216c and Eccentric Warm Neptune TOI-216b*, Division of Dynamical Astronomy, Online, May 17, 2021
24. *Testing the Origins of Close-In Exoplanet Populations*, the SAMSI ASTRO Transition Workshop, Research Triangle Park, NC, May 8th, 2017.
25. *The Critical Role of Residual Gas in Establishing Super-Earths' Compositions and Orbital Architectures*, Formation and Dynamical Evolution of Exoplanets, Aspen, Colorado, March 31st, 2017.
26. *Mitigating bias in testing the origins of warm Jupiters via constraints on transit duration variations*, the American Astronomical Society Meeting #229, Grapevine, Texas, January 7th, 2017.
27. *Formation of Super-Earths and Mini-Neptunes*, the Statistical, Mathematical and Computational Methods for Astronomy Program on Exoplanet Populations, October 20th, 2016.
28. *Disks and Dynamics Tutorial*, Gemini Planet Imager meeting, September 12th, 2016.
29. *Connections among spacing, composition, and flatness in super-Earth systems*, American Astronomical Society Meeting #227, Kissimmee, Florida, January 6th, 2016.
30. *Origins and Signals of Super-Earths and Mini-Neptunes*, Bay Area Exoplanets, Mountain View, California, March 20, 2015.
31. *The whodunit of debris disk archaeology*, Thirty Years of Beta Pic and Debris Disk Studies, Paris, France, September 8, 2014.
32. *Toward mitigating the impact of correlated noise on the detection and characterization of Kepler planets*, ExoStats 2014. Pittsburgh, Pennsylvania, June 18, 2014.
33. *Challenges in Inferring and Interpreting Planetary Orbital Properties*, Bay Area Exoplanets Meeting, Mountain View, California, March 14, 2014.
34. *KOI-1474: A Case Study for Giant Planet Migration*, Bay Area Exoplanets Meeting, Mountain View, California, December 6, 2013.
35. *Origins and Evolution of Planetary Systems with GPI*, Gemini Planet Imager Meeting, Mountain View, California, November 1st-2nd, 2013.
36. *Constraining planetary migration mechanisms in systems of giant planets*, Modern Statistical and Computational Methods for Analysis of Kepler Data, Research Triangle Park, North Carolina, June 10th-28th, 2013.
37. *Constraining planetary migration mechanisms in systems of giant planets*, International Astronomical Union Symposium 299: Exploring the Formation and Evolution of Planetary Systems, Victoria, British Columbia, Canada, June 2nd-7th, 2013.
38. *Disk Migration vs. Multi-body Interactions: Kepler constraints from highly-eccentric hot Jupiter progenitors*, Exoplanets in Multi-body Systems in the Kepler Era, Aspen, Colorado, February 9-15, 2013.
39. *Constraining Planetary Migration Mechanisms with Highly Eccentric Hot Jupiter Progenitors*, American Astronomical Society, Long Beach, California, January 6th-10th, 2013
40. *Neptune's Wild Days: Constraints from the Classical Kuiper Belt*, American Astronomical Society Division on Dynamical Astronomy Meeting, Mt. Hood, Oregon, May 6th-May 10th, 2012.

41. *Planetesimal Disks as Tracers of Planet-Planet Scattering, at Home and Abroad.*, “Extreme Solar Systems II,” Moran, Wyoming, September 11th-17th 2011.
42. *Migration and Scattering: Constraints on the Dynamical History of the Solar System.*, “Exploring Strange New Worlds,” Flagstaff, AZ, May 1st-6th, 2011.
43. *Secular Constraints on the Dynamical History of the Solar System*, American Astronomical Society Division on Dynamical Astronomy Meeting, Austin, TX, April 10th-14th, 2011.
44. *Packed Perturbers: Short-term Interactions Among Uranus’ Inner Moons*, American Astronomy Society Division on Dynamical Astronomy Meeting, Boston, MA, April 25th-29th, 2010.

Contributed Conference Posters

45. *Precise Characterization of a 2:1 Resonant Pair: The Warm Jupiter TOI-216c and Eccentric Warm Neptune TOI-216b*, TESS Science Conference II, Online, August 2—6, 2021
46. *Obliquities of exoplanet host stars*, Division of Dynamical Astronomy, Online, May 17, 2021
47. *Connections among spacing, composition, and flatness in super-Earth systems*, American Astronomical Society Division for Planetary Science Meeting, National Harbor, District of Columbia, November 8-13, 2015.
48. *A metallicity recipe for rocky planets*, Gordon Conference on Origins of Solar Systems, Mount Holyoke, Massachusetts, June 28-July 3, 2015.
49. *Planetary Systems Great and Small*, Miller Symposium, Point Reyes Station, California, June 2015.
50. *Planetary Systems in 4D*, Miller Symposium, Point Reyes Station, California, June 6th-8th, 2014.
51. *KOI-1474: A Case Study for Giant Planet Migration.*, Kepler Science Conference II, Mountain View, California, November 4th-8th, 2013.
52. *gadgetbelt: a tool for modeling planetary sculpting of massive debris disks.*, Protostars and Planets VI, Heidelberg, Germany, July 15th-20th, 2013.
53. *The Photoeccentric Effect and Proto-Hot-Jupiters*, Sagan Workshop, Pasadena, California, July 22nd-27th, 2012.
54. *The Photoeccentric Effect and Proto-Hot-Jupiters*, the American Astronomy Society Division on Dynamical Astronomy Meeting, Mt. Hood, Oregon, May 6th-May 10th, 2012.
55. *On the Misalignment of the Directly Imaged Planet β Pictoris b with the System’s Warped Inner Disk*, American Astronomy Society Division on Dynamical Astronomy Meeting, Mt. Hood, Oregon, May 6th-May 10th, 2012.
56. *Secular Constraints on the Dynamical History of the Solar System*, WE-Heraeus Seminar “Extrasolar Planets: Toward Comparative Planetology beyond the Solar System,” June 5th-8th 2011.
57. *Secular Constraints on the Dynamical History of the Solar System*, American Astronomical Society, Boston, MA, May 22nd- 26th 2011.
58. *Radial Velocities De-aliased.*, Astronomy of Precise Radial Velocities, University Park, PA, August 16th-19th 2010.
59. *Radial Velocities De-aliased*, American Astronomical Society, Miami, FL, May 23rd- 27th 2010.
60. *Dynamical Interactions Among the Small, Inner Moons of Uranus*, American Astronomy Society Division on Dynamical Astronomy Meeting, Virginia Beach, VA, May 2nd-5th, 2009.

RESEARCH ADVISING POSTDOCTORAL

- **Fall 2019 — Spring 2020**, Angie Wolfgang (assistant research professor), “Testing time evolution of exoplanet populations.” Current position: senior data scientist at SiteZeus
- **Fall 2017 — Summer 2019**, Sarah Morrison (postdoc), “Planetary dynamics and migration.” Current position: assistant professor at Missouri State
- **Fall 2016 — Summer 2019**, Andrew Shannon (research associate, assistant research professor), “Formation and dynamics of planets and debris disks.” Current position: senior analyst at Canada Mortgage and Housing Corporation

GRADUATE (PhD)

- **Spring 2020 — present**, Phoebe Sandhaus, “Dynamics of multi-planet systems.”
- **Spring 2018 — present**, Emily Safsten, “Time Evolution of Exoplanet Systems.”
- **Summer 2017 — Summer 2022**, Jiayin Dong, “Dynamics of of planetary systems and debris disks.”
- **Summer 2016 — Summer 2022**, Jonathan Jackson, “Origins of warm Jupiters.”
- **Fall 2016 — Spring 2021**, Mariah MacDonald, “Super-Earth formation and dynamics.” Awarded PhD in Spring 2021. Current position: assistant professor at The College of New Jersey
- **Spring 2019 — Spring 2020**, Luis Nunez, “Warm Jupiter tidal migration.” Current position: Teach for America Fellow

UNDERGRADUATE (2016—present)

- **Spring 2022 — present**, Julietta Lucci (Penn State), “Influence of outer giant planets on inner solar systems.”
- **Spring 2021 — Spring 2022**, Claire DiPerna (Penn State), “Dynamical evolution of planetary systems,” co-advised with Jiayin Dong.
- **Spring 2021 — Spring 2022**, Jonathon Hope (Penn State), “Dynamical evolution of planetary systems,” co-advised Jiayin Dong.
- **Fall 2016 — present** Rory Bowens (Penn State), “Long term stability of transitional disk sculpting planetary systems,” co-advised with Andrew Shannon. Current position: PhD student at University of Michigan
- **Fall 2018 — Summer 2020**, Cody Shakespeare (Penn State), “Formation of resonant chains,” co-advised with primary advisor Mariah MacDonald. Current position: PhD student at UNLV
- **Fall 2017 — Spring 2019**, Shirin Zaidi (Penn State), “Deposition of Material from Enceladus on Trojan Moons,” co-advised with primary advisor Sarah Morrison.
- **Fall 2017 — Spring 2019**, Michael Penwarden (Penn State), “Eccentricity Excitation in the Habitable Zone,” co-advised with primary advisor Sarah Morrison. Current position: PhD student at University of Utah.
- **Spring 2016 — Spring 2017**, Paige Campbell (Penn State), “Host star metallicity dependence of high eccentricity migration.” Current position: Entrepreneur
- **Summer 2015 — Spring 2017**, Arjun Khandelwal (Haverford College), “Recovery of long-period transiting planets.” Current position: Research assistant

TEACHING (2016—present)

- **2016—2021 Assistant Professor; 2021 — present Associate Professor**, The Pennsylvania State University, Courses: Astronomy 5 (Stars and Planets; Fall 2017;

- general education undergraduate course for non-majors), [Astronomy 577/](#)
[Astronomy 577/585](#) (Exoplanets; Spring 2016, 2018, 2020, 2022; graduate
elective class on exoplanets, a new course developed by Dawson), [Astronomy 589](#)
(Fall 2016; graduate seminar on exoplanet time series, course developed by
Dawson), [Astronomy 597](#) (Evolution of the Biosphere; Spring 2018; graduate
course for Astrobiology dual degree PhD program), [Astronomy 475W](#) (Stars and
Galaxies, Fall 2019, 2021; upper-level undergraduate major course that also fulfills
writing requirement), [Astronomy 1](#) (Astronomical Universe; Spring 2021; general
education undergraduate course for non-majors); [individual study supervisor](#)
(Matthias He, Jonathan Jackson, Mariah MacDonald, Jiayin Dong, Emily Safsten,
Luis Nunez, Helen Baran, Shirin Zaidi, Phoebe Sandhaus, Shubham Kanodia)
- **2016—2020 Guest Lecturer**, The Pennsylvania State University, Courses: [Astronomy 6](#): Stars, Galaxies, and the Universe (one lecture); [Meteorology 466](#): Planetary Atmospheres (two lectures); [Astro 497](#): Topics in Planetary Sciences (one lecture); [Biol/Geosci 474](#): Astrobiology (two lectures), [Data Science 200](#): Introduction to Data Science (one lecture)
 - **2017 Guest Lecturer**, *Exoplanet Dynamics Tutorial*, The Technologies for Exo-Planetary Science Summer School Workshop, Montreal, Canada, June 15th, 2017 (invited)
 - **2016 Guest Lecturer**, *Time Domain Challenges for Exoplanets*, the Statistical, Mathematical and Computational Methods for Astronomy Undergraduate Workshop, Research Triangle Park, NC, October 24th, 2016 (invited)

PROFESSIONAL SERVICE (2016—present)

- **Meeting-within-a Meeting Organizer**, Multi-faceted Views of Planet Formation, American Astronomical Society, June 14-18, 2022.
- **Scientific Organizing Committee Member**: Extreme Precision Radial Velocity Workshop (August 2017), Habitable Worlds 2017: A System Science Workshop (November 2017), Planet-Star Connections in the Era of TESS and Gaia (May 2019, [chair](#)), TESS Science Conference (July 2019), Toward Other Earths 3 (Summer 2020; conference postponed due to COVID), Exostar Redux (August 2020), Exoplanets III (Spring 2022)
- **Member**: Gemini Planet Imager Steering Committee (2017—present)
- **Member**: American Astronomical Society Division on Dynamical Astronomy Nominating Committee (2021—present)
- **Member**: Large UV/Optical/Infrared Surveyor (LUVOIR) Science Definition Team (2016—2020)
- **Member**: Nancy Roman Science Investigation Team, “Characterizing Extrasolar Planetary Systems with the WFIRST Coronagraph” (2016)
- **Referee** *Astrophysical Journal Letters* (2012-present), *Astrophysical Journal* (2013-present), *Icarus* (2013-present), *MNRAS* (2015-present), *Nature* (2014-present), *PASP* (2016-present), *PNAS* (2016-present), *Science* (2014-present)
- **Panelist/Reviewer/Panel Chair**: NASA (2013-present), NSF (2014-present), NAO (2021—present)
- **KITP Program Coordinator**, Better Stars, Better Planets: Exploiting the Stellar-Exoplanetary Synergy, April 15—June 28, 2019

- **Meeting-within-a Meeting Organizer**, Inner Solar Systems, American Astronomical Society, Austin, TX, June 5-6th, 2017.

UNIVERSITY AND DEPARTMENT SERVICE (2016—present)

- **Astronomy & Astrophysics Associate Head for the Graduate Program** (also listed in Current Position)
- **Academic Advisor** to Penn State graduate students Matthias He, Malinda Baer, Stephen Kerby and Penn State undergraduates: Chad Pozarycki, Samuel Ruth, Douglas Stout, Jeremy Chen, Dylan Dirkmaat, Charles Hapich, Brenda Jones, Maya Marcy, Arjina Islam, Mya Crews, Adam Stone, LinZi Zheng
- **Departmental Committees:** Penn State Astronomy colloquium and departmental talks committee, *chair* (2017-2018), Penn State Astronomy Graduate Admissions Committee (2016-2018, 2019–2021), Penn State Astronomy Graduate Program Committee (2016-2017; 2018-2021; *chair*, 2021—present), Penn State Astronomy Climate Committee (2018–2019)
- **College Committee Member:** Penn State College of Science Ethics Committee (2016), Penn State College of Science STRIDE Committee (2019—present; design and deliver workshops on diversity, equity, and inclusion in faculty hiring; design Launch program for new faculty members; chair Launch committee for new faculty member Lukas Muechler)
- **Mentor** (via videoconferencing), Wellesley College Alumnae Network (2017—present)
- **Organizer:** Penn State Center for Exoplanets and Habitable Worlds Seminar (2016-2017), Career Seminars (2021—present)
- **Comprehensive Exam Committee Member:** Mark Wells (August 2017), Noah Tuchow (December 2017), Matthias He (May 2018), Mariah MacDonald (May 2018), Jonathan Jackson (May 2018), Caleb Cañas (August 2018), Sofia Sheikh (March 2019), Emily Safsten (April 2019), Jiayin Dong (April 2019), Christian Gilbertson (April 2019), Alan Reyes (July 2019), Brianna Zawadski (March 2020)
- **Second Year Project Reader:** Matthias He (December 2018), Brianna Zawadski (December 2019)
- **Thesis Committee Member:** Jason Curtis (August 2016), Mariah MacDonald (May 2018—January 2021; chair), Matthias He (May 2018 — February 2022), Sofia Sheikh (March 2019—June 2021), Jacob Luhn (June 2019—June 2021), Jonathan Jackson (May 2018—June 2022; chair), Caleb Cañas (August 2018–April 2022), Jiayin Dong (April 2019 — June 2022; chair), Emily Safsten (April 2019 — present; chair), Christian Gilbertson (September 2019—present), Brianna Zawadski (March 2020 — present), Elizabeth Melton (September 2020 — present), Malinda Baer (June 2021 — present)
- **External PhD Examiner:** Antranik Sefilian (Cambridge University, March 2022)

PUBLIC OUTREACH (2016—present)

- **2017—2020**, Upward Bound Math and Science Program, advisor/supervisor of Astronomy summer class for low income, potential first-generation-to-college high school students taught by Penn State graduate students and undergraduates

- **2020 August 11—14**, Virtual Astrofest: public lecturer “Telling the Story of Life in the Cosmos with the Space Telescope of the Future”; volunteer, Ask an Astronomer; created scale of the solar system video demonstration
- **2018 June 19**, Penn State In-service Workshop in Astronomy, lecturer to high school teachers (invited)
- **2018 February 10**, Frontiers of Science public lecturer, “The Birth of Habitable Planets” (invited)
- **2017 July 12–14**, AstroFest: public lecturer, “TRAPPIST 1 Planetary System: Your New Tiny Red Home”; volunteer, exoplanet demonstrations and astronomy art
- **2017 June 22**, Penn State In-service Workshop in Astronomy, lecturer to high school teachers (invited)
- **2017 April 17**, Take Your Children to Work Day activity leader, Penn State
- **2017 April 10**, public lecturer, “TRAPPIST 1 Planetary System: Your New Tiny Red Home,” Astronomy on Tap (invited)
- **2017 March 29**, Aspen Science Cafe panelist; shared career and research and answered question from members of the public (invited)
- **2017 January 29**, Job shadowing mentor to high school junior, Brenna Mullins
- **2016 July 16 - 17**, AstroFest: public lecturer, “Giant planet surprises” & Astronomy Idol; volunteer, exoplanet demonstrations and activities for children