

# **Biographical Outline and Curriculum Vitae**

## **Alice C. Quillen**

Department of Physics & Astronomy, University of Rochester  
Rochester, NY 14627-0171  
[alice.quillen@gmail.com](mailto:alice.quillen@gmail.com) (585)-275-9625

### **ACADEMIC HISTORY**

1984	BA Physics, Harvard-Radcliffe College
1991	MS Physics, Caltech
1993	PhD Physics, Caltech
1993-96	Columbus Postdoctoral Fellowship, Astronomy Department, The Ohio-State University
1996-98	Postdoctorate in Astronomy, Steward Observatory, University of Arizona

### **POSITIONS HELD**

2010-present	Professor of Physics and Astronomy, University of Rochester
2017 Nov-2018 Jan.	Visitor, Research School of Astronomy and Astrophysics, Australian National University, Mt.Stromlo Observatory, Canberra, ACT, Australia
2017 Mar, April	Visitor, Observatoire de la Cote D'Azur, Nice, France
2017 July, 2018 May	Visitor, Leibniz-Institut für Astrophysik, Potsdam, Germany
2006-2010	Associate Professor of Physics and Astronomy, U Rochester
2009 Fall	Visiting Fellow, Isaac Newton Institute, Cambridge, England
2002-2006	Assistant Professor of Physics and Astronomy University of Rochester
2007 April, May	Visitor, Institute of Advanced Studies, Mt.Stromlo Observatory, Australian National University, Canberra, ACT, Australia
2007 February	Visitor, Institute for Advanced Study, Princeton, NJ
2007 January	Visitor, Observatoire de la Cote D'Azur, Nice, France
2001 Fall	Visiting Scientist, Physics Department, Technion, Haifa, Israel
1999-2001	Assistant Astronomer, Steward Observatory, University of Arizona

### **TEACHING at The University of Rochester**

Spring 2022,23,24	PHY265 Introduction to Quantum Computing and Quantum Information
Fall 2013,15,18,23	PHY411 Advanced Classical Mechanics and Chaos (Graduate)
Spring 2016,19,21	PHY256 Computational Physics
Spring 2017,20	AST233 Astrodynamics
Fall 2019-22	PHY141 Modern Physics: Mechanics, (First year Honors)
Fall 2005-08,10-11,14	PHY103 Physics of Music
Spring 2010,12,14	AST242 Astrophysical Hydrodynamics

Spring 2009,11,13	AST570 Solar System Dynamics (Graduate)
Spring 2003,04,06,08,15	AST142 Introductory Astrophysics
Fall 2002,06	AST552 Galactic Dynamics (Graduate)
Fall 2003,04,12,16	AST111 Introductory Astronomy, Origins of our Solar System

### Awards and Honors

- ⌚ 2019 **Boris Garfinkel Lectureship in Dynamical Astronomy**, Yale University
- ⌚ 2017 **Simons Fellow** in Theoretical Physics, Simons Foundation
- ⌚ 2017 **Johann Wempe Award**, Leibniz-Institut für Astrophysik, Potsdam, Germany  
<http://www.aip.de/en/news/personnel-and-prizes/wempe-award-for-alice-c-quillen>
- ⌚ **Elected Chair** (3 years service as Vice-Chair, Chair, Post-Chair) of the American Astronomical Society's *Division on Dynamical Astronomy* (DDA) 2010
- ⌚ Winner of the University of Rochester's Department of Physics and Astronomy **Annual Award for Excellence in Teaching**, voted and presented by the graduating undergraduate seniors in 2010.
- ⌚ **Columbus Postdoctoral Fellowship** 1993-96, Dept. of Astronomy, The Ohio-State University

### GRADUATE STUDENTS

Ivan Minchev	UR/Physics PhD June 2008, Thesis: <i>The effect of spiral and bar structure on the Milky Way velocity distribution</i> . Postdoctorate at Université de Strasbourg, CNRS Observatoire Astronomique, then a 5 year fellowship at Leibniz-Institut für Astrophysik Potsdam where he continues as a tenured senior astronomer. Winner of the Ludwig Biermann Award winner 2015, <a href="http://www.aip.de/en/news/press/minchev-biermann">http://www.aip.de/en/news/press/minchev-biermann</a> Winner of the 2006 Ray Duncombe Graduate Student Award given annually by the American Astronomical Society's Division on Dynamical Astronomy.
Alex Moore	UR/Physics PhD summer 2013, Thesis: <i>Dynamical Simulations of Extrasolar Planetary Systems with Debris Disks Using a GPU Accelerated N-Body Code</i>
Justin Comparetta	UR/Physics MS 2011, Thesis: <i>Jeans instability in a tidally disrupted halo satellite galaxy</i> , withdrawn from PhD program. Winner of the 2010 Ray Duncombe Graduate Student Award given annually by the American Astronomical Society's Division on Dynamical Astronomy. Currently working at UR Medical Center
Eva Bodman	UR/Physics PhD Jan 2017, Thesis: <i>Modeling Variability and Irregular Transits from Circumstellar Disks and Debris</i> .

	Winner of the 2016 Ray Duncombe Graduate Student Award given annually by the American Astronomical Society's Division on Dynamical Astronomy.
	NASA postdoctoral fellow at Arizona State University, Feb 2017-2019
Esteban Wright	UR/Physics PhD Aug 2022, Thesis: <i>Ricochets and Stranding Boulders on Rubble Pile Asteroids</i> . NSF graduate fellowship taken to the University of Maryland Sept. 2022 - present.
Danielle Bovie	UR/Materials Science MS 2023. Thesis: <i>Rearrangement of Granular Surfaces on Asteroids due to Thermal Cycling</i> . Graduate student in astronomy somewhere in Texas

## **SERVICE**

Chair of the American Astronomical Society's (AAS) Division of Dynamical Astronomy (DDA) 2010-2011, Elected Vice Chair 2009-2010, Past Chair (2011-2012)

Search Committee for Dean of the Faculty of Arts and Sciences and Engineering, U Rochester, Dec 2016-April 2017

Multidisciplinary UR Summer Workshop organizer: Summer 2015 on *Turbulence*, Summer 2016 on *Physics models for Biological systems*. These are interdisciplinary workshops organized with Doug Kelley and supported by the Dept. of Physics and Astronomy and the Dept. of Mechanical Engineering.

American Astronomical Society Chretien International Research Grant Committee (2014-2016)

Division of Dynamical Astronomy Ray Duncombe Student Award Committee 2012-2015, Nominating committee 2016-2018

Chair of Scientific Organizing Committee for the DDA meeting May 2010, Boston  
Organizer for GPU programming workshops in CUDA, U Rochester, Feb 2011, June 2008

Organizing committee for The International Summer Institute for Modeling in Astrophysics, summer 2014, in Toronto

Organizer for workshop and summer school on Computational Gravitational Dynamics, Lorenz Center, Leiden, May 2010

Scientific Organizing Committees: DDA meeting 2011; Goddard Signposts of planets meeting Oct 2011; The Milky Way April 2011; IAU 2009 JD on the Milky Way in Rio Brazil

GPU Interest group, U Rochester Center's for Research Computing, elected chair 2010  
Spitzer Space Telescope Users Panel, 2008-2011

Gemini Long Term Program Time Allocation Committee 2015

NOAO Time Allocation Committee 2015, 2016

Member of RAVE collaboration 2006-2008

Terrestrial Planet Finder-Interferometer, Science Working group, 2005-2007

NASA-Origins/TPF panel-1 time Planet Detection Panel

Hubble Space Telescope Time allocation panel – 4 times (once TAC at large, 2011)  
Spitzer Space Telescope Time allocation panel – 3 times  
Chandra Space Telescope Time allocation panel – 2 times  
Sofia Telescope Time Allocation panel –once (2011)  
NSF-Careers panel 2007, NSF extra-Galactic panel (once), NSF galactic astrophysics (2013)  
NASA Solar systems working review panel 2018  
NASA Astrophysical Theory Program panel – three times, twice as chair (2012-exoplanets)  
NASA Astrobiology Institute panel –once (2006)  
Steward Observatory Telescope Time Allocation Committee, 1999-2000  
Planetary Rings data node, users feedback committee 2021-present  
Physics and Astronomy Dept. at UR:  
Mathematical physics seminar organizer, Fall 2013-2014  
Chair, Graduate Admissions Committee, 2006-2014  
Undergraduate Advisor for majors in Physics and Astronomy, 2003-2008  
Chair, Colloquium and Seminars Committee, 2014-2018  
Tamor Fund Committee for Career Development of Graduate Students 2016-2021  
Building space committee at UR 2019-2022  
Executive committee 2020-2021  
Aspirational committee 2020-2021  
Co-advisor for incoming 2021 class of Graduate students

### **Large Collaborations:**

GALAH survey team 2018-2021  
OSIRIS-REx Mission Team, simulations subgroup 2018-2021  
Astro3D collaboration 2021-2022  
Rave Survey (First two years)

### **CURRICULUM VITAE**

Marks: <sup>u</sup>=undergrad, <sup>\*</sup>=graduate student

### **In Preparation:**

#### **Papers submitted for publication:**

***HOPS 361-A: An Intermediate-Mass Protostar and its Complex Outflow Cavity in NGC 2071 IR***, Karnath, N., Rubinstein\*, A.E., Federman\*, S., Quillen, A. C., Green, J., Chambers, E.T., Watson, D.M., Megeath, T., Puravankara, M., Narang, M., Coude, S., Goldman, S., Tobin, J. J. 2024, submitted to ApJ

***Froude number scaling unifies impact trajectories into granular media across gravitational conditions***, Miklavcic\*, P. M., Tokar, E., Wright, E., Sánchez, P., Glade, R., Quillen, A., Askari, H. 2024, submitted to *Nature Materials*, <https://arxiv.org/abs/2307.10998v1>

***N-Corpiion, A O(N) software for N-body integration in collisional and fragmenting systems***,

J. Couturier, Quillen, A. C. & Nakajima, M. 2024, submitted to the *Journal of Computational Physics*, <https://arxiv.org/abs/2310.20374>

**Limited Role of Streaming Instability on the Moon and Exomoon Formation**, Nakajima, M., Atkins, J., Simon, J. B., Quillen, A. C. 2024, submitted to the *Astrophysical Journal*.

#### Publications in press:

**Wind erosion and transport on planetesimals**, Quillen, A. C., Luniewski\*, S., Rubinstein\*, A. E., Couturier, J., Glade, R., & Nakajima, M. 2024, accepted for publication in *Icarus*, <https://arxiv.org/abs/2310.09572>

**Generating quantum channels from functions on discrete sets**, Quillen, A.C., Skerrett<sup>u</sup>, N., 2024, <https://arxiv.org/abs/2308.06084> accepted for publication in *Quantum Information Processing*

**Gaia DR3 data consistent with a short bar connected to a spiral arm**, Vislosky, E., Minchev, I., Khoperskov, S., Martig, M., Buck, T., Hilmi, T., Ratcliffe, B., Bland-Hawthorn, J., Quillen, A. C., Steinmetz, M., de Jong, R., 2024, accepted for publication in *Monthly Notices of the Royal Astronomical Society*

#### Published in refereed publications:

1. **Subsurface pulse, crater and ejecta asymmetry from oblique impacts into granular media**, Suo<sup>u</sup>, Bingcheng, Quillen, A. C. , Neiderbach<sup>u</sup>, M., O'Brient<sup>u</sup>, L., Miakhel<sup>u</sup>, A.S., Skerrett<sup>u</sup>, N., Couturier, J., Lherm, V., Wang<sup>u</sup>, J., Askari, H., Wright, E., Sanchez, P., 2024, *Icarus*, 408, 115816 , doi: [10.1016/j.icarus.2023.115816](https://doi.org/10.1016/j.icarus.2023.115816)
2. **HOPS 361-C's Jet Decelerating and Precessing Through NGC 2071 IR**, Rubinstein\*, Adam E., Karnath, N., Quillen, A. C. , Federman\*, S., Green, J. D., Chambers, E. T., Watson, D. M. & Megeath, S. T., 2023, *the Astrophysical Journal*, 948, 1, id.39, 19 pp., <https://doi.org/10.3847/1538-4357/acc401>
3. **Robust formation of metachronal waves in directional chains of phase oscillators**, Quillen, A. C., 2023, *Phys. Rev. E* 107, 034401, <https://doi.org/10.1103/PhysRevE.107.034401>
4. **Fluid circulation driven by collectively organized metachronal waves in swimming *T. aceiti nematodes***, Quillen, A. C., Peshkov A., Chakrabarti, B., McGaffigan<sup>u</sup>, S., Skerrett<sup>u</sup>, N., Zapiach<sup>u</sup>, R., 2022, *Physics Review E* 106, 064401, doi: [10.1103/PhysRevE.106.064401](https://doi.org/10.1103/PhysRevE.106.064401)
5. **Surface particle motions excited by a low velocity normal impact into a granular medium**, Neiderbach<sup>u</sup>, M., Suo<sup>u</sup>, B., Wright\*, E., Quillen, A.C., Lee, M., Miklavcic\*, P., Askari, H., & Sanchez, P. 2022, *Icarus*, 386, 115139, doi: [10.1016/j.icarus.2022.115139](https://doi.org/10.1016/j.icarus.2022.115139)
6. **Transmission of a Seismic Wave generated by impacts on Granular Asteroids**, Sánchez, P., Scheeres, D. J. & Quillen, A. C. 2022, *The Planetary Science Journal*, 3, 10, id.245, 14 pp. doi: [10.3847/PSJ/ac960c](https://doi.org/10.3847/PSJ/ac960c)
7. **Propagation and attenuation of pulses driven by low velocity normal impacts in granular media**, Quillen, A. C., Niederbach<sup>u</sup>, M., Suo<sup>u</sup>, B., South<sup>u</sup>, J., Wright\*, E., Skerrett<sup>u</sup>, N., Sánchez, P., Cúñez, F. D., Miklavcic\*, P., & Askari, H. 2022, *Icarus*, 386, 115139, doi: [10.1016/j.icarus.2022.115139](https://doi.org/10.1016/j.icarus.2022.115139)

8. *Sub-surface granular dynamics in the context of oblique, low velocity impacts into angular granular media*, Miklavcic\*, Peter M., Askari, H., Sanchez, P., Quillen, A. C. & Wright\*, E. 2022, Icarus, 385, 115089, doi: [10.1016/j.icarus.2022.115089](https://doi.org/10.1016/j.icarus.2022.115089)
9. *Synchronized oscillations in swarms of nematode *Turbatrix Aceti**, Peshkov, A. McGaffigan<sup>u</sup>, S., & Quillen, A. C. 2022, Soft Matter, vol. 18, issue 6, pp. 1174-1182, doi: <https://doi.org/10.1039/D1SM01572A>
10. *Ricochets on Asteroids II. Sensitivity of low velocity grazing angle impacts on substrate grain size*, Wright\*, E., Quillen, A. C., Sánchez, P., Schwartz, S. R., Nakajima, M., Askari, H., & Miklavcic\*, P. 2022, Icarus, 376, 114868, doi: <https://doi.org/10.1016/j.icarus.2021.114868>
11. *Habitat Bennu: Design Concepts for Spinning Habitats Constructed from Rubble Pile Asteroids*, Miklavcic\*, P., Siu<sup>u</sup>, J., Wright\*, E., Debrecht\*, A., Askari, H., Quillen, A. C., & Frank, A. 2022, Frontiers in Astronomy and Space Sciences, 03, doi: <https://doi.org/10.3389/fspas.2021.645363>
12. *Non-principal axis rotation in binary asteroid systems and how it weakens the BYORP effect*, Quillen, A. C., LaBarca<sup>u</sup>, A. and Chen, Y.Y., 2022, Icarus, 374, 114826, doi: <https://doi.org/10.1016/j.icarus.2021.114826>
13. *Dynamically Produced Moving Groups in Interacting Simulations*, Craig, P., Chakrabarti, S., Newberg, H. J. and Quillen, A. 2021, Monthly Notices of the Royal Astronomical Society, 505, 2, 2561-2574, doi: <https://doi.org/10.1093/mnras/stab1431>
14. *Metachronal waves in concentrations of swimming *Turbatrix aceti* nematodes and an oscillator chain model for their coordinated motions*, Quillen, A. C., Peshkov, A., Wright\*, E., and McGaffigan<sup>u</sup>, S., 2021, Physics Review E, 104, 014412, doi: <https://doi.org/10.1103/PhysRevE.104.014412>
15. *A Measurement of the Galactic Plane Mass Density from Binary Pulsar Accelerations*, Chakrabarti, S., Chang, P., Lam, M. T., Vigeland, S. J.. & Quillen, A. C. 2021, Astrophysical Journal Letters, 907(2):L26-L33, doi: [10.3847/2041-8213/abd635](https://doi.org/10.3847/2041-8213/abd635)
16. *Accretion of Ornamental Equatorial Ridges on Pan, Atlas and Daphnis*, Quillen, A. C., Zaidouni<sup>u</sup>, F., Nakajima, M., Wright\*, E. 2021, Icarus, 357, 114260, <https://doi.org/10.1016/j.icarus.2020.114260>
17. *Birth Sites of Young Stellar Associations and Recent Star Formation in a Flocculent Corrugated Disk*, Quillen, A. C., Pettitt, A. R., Chakrabarty, S., Zhang<sup>u</sup>, Y., Gagne, J., & Minchev, I. 2020, Monthly Notices of the Royal Astronomical Society, 499, 4, 5623-5640, doi: <https://doi.org/10.1093/mnras/staa3189>
18. *Fluctuations in galactic bar parameters due to bar-spiral interaction*, Hilmi, T., Minchev, I., Buck, T., Martig, M., Quillen, A. C., Monari, G., Famaey, B., de Jong, R. S., Laporte, C. F. P., Read, J., Sanders, J. L., Steinmetz, M., Wegg, C. 2020, Monthly Notices of the Royal Astronomical Society, 497, 1, 933-955, doi: <https://doi.org/10.1093/mnras/staa1934>
19. *Ricochets on Asteroids: Experimental study of low velocity grazing impacts into granular media*, Wright\*, E., Quillen, A. C., South<sup>u</sup>, J., Nelson, R. C., Sánchez, P., Siu<sup>u</sup>, J., Askari, H., Nakajima, N., Schwartz, S. R. 2020, Icarus, 351, 113963, doi: <https://doi.org/10.1016/j.icarus.2020.113963>
20. *Boids in a Loop: Self-Propelled particles in a Flexible Boundary*, Quillen, A. C., Smucker<sup>u</sup>, J. P. & Peshkov, A., 2020, Physics Review E, 101, 052618, doi: <https://doi.org/10.1103/PhysRevE.101.052618>

21. *Excitation of Tumbling in Phobos and Deimos*, Quillen, A. C., Lane<sup>u</sup>, M., Nakajima, M., Wright\*, E. 2020, Icarus, 340, 113641, doi: <https://doi.org/10.1016/j.icarus.2020.113641>
22. *Boulder Stranding in Ejecta Launched by an Impact Generated Seismic Pulse*, Wright\*, E., Quillen, A. C., South<sup>u</sup>, J., Nelson, R. C., Sánchez, P., Martini<sup>u</sup>, L., Schwartz, S. R., Nakajima, M., Asphaug, E., 2020, Icarus, 337, 113424, doi: <https://doi.org/10.1016/j.icarus.2019.113424>
23. *Star Formation Efficiencies at Giant Molecular Cloud Scales in the Molecular Disk of the Elliptical Galaxy NGC 5128 (Centaurus A)*, Espada, D., Verley, S., Miura, R. E., Israel, F. P., Henkel, C., Matsushita, S., Vila-Vilaro, B., Ott, J., Morokuma-Matsui, K., Peck, A. B., Hirota, A., Aalto, S., Quillen, A. C., Hogerheijde, M. R., Neumayer, N., Vlahakis, C., Iono, D., Kohno, K. 2019, The Astrophysical Journal, 887, 1, 88, 14 pp. doi: [10.3847/1538-4357/ab262d](https://doi.org/10.3847/1538-4357/ab262d)
24. *A Light-Weight Vibrational Motor Powered Recoil Robot that hops Rapidly Across Granular Media*, Quillen, A. C., Nelson, R. C., Chotkowski<sup>u</sup>, K., Wright\*, E., Askari, H., Shang, J. K. 2019, Journal of Mechanisms and Robotics, Vol 11, 6, 061001, pages 1-11, doi: <https://doi.org/10.1115/1.4044333>
25. *The GALAH survey and Gaia DR2: dissecting the stellar disc's phase space by age, action, chemistry, and location*, Bland-Hawthorn, J., Sharma, S., Tepper-Garcia, T., Binney, J., Freeman, K. C., Hayden, M. R., Kos, J., De Silva, G. M., Ellis, S., Lewis, G. F., Asplund, M., Buder, S., Casey, A. R., D'Orazi, V., Duong, L., Khanna, S., Lin, J., Lind, K., Martell, S.L., Ness, M.K., Simpson, J.D., Zucker, D.B., Zwitter, T., Kafle, P.R., Quillen, A.C., Ting, Y.-S., Wyse, R. F. G. 2019, Monthly Notices of the Royal Astronomical Society, Volume 486, 1167-1191. doi: [10.1093/mnras/stz217](https://doi.org/10.1093/mnras/stz217)
26. *Near/Far Side Asymmetry in the Tidally Heated Moon*, Quillen, A. C., Martini<sup>u</sup>, L., Nakajima, M., 2019, Icarus, 329, 182-196, doi: <https://doi.org/10.1016/j.icarus.2019.04.010>
27. *Simulations of wobble damping in viscoelastic rotators*, Quillen, A. C., Wagner<sup>u</sup>, K., Sanchez, P. 2019, Monthly Notices of the Royal Astronomical Society, 485, 725-738. doi: [10.1093/mnras/stz422](https://doi.org/10.1093/mnras/stz422)
28. *Impact Excitation of a Seismic Pulse and Vibrational Normal Modes on Asteroid Bennu and Associated Slumping of Regolith*, Quillen, A. C., Zhao, Y., Chen, Y.Y., Sanchez, P., Nelson, R. C., Schwarz, S. R. 2019, Icarus, 391, 312-333, doi: <https://doi.org/10.1016/j.icarus.2018.09.032>
29. *Spiral arm crossings inferred from ridges in Gaia stellar velocity distributions*, Quillen, A. C., Carrillo\*, I., Anders\*, F., McMillan, P., Hilmi\*, T., Monari, G., Minchev, I., Chiappini, C., Khalatyan, A., Steinmetz, M. 2018, Monthly Notices of the Royal Astronomical Society, 480, 3132-3139, doi: <https://doi.org/10.1093/mnras/sty2077>
30. *Coma Berenices: The First Evidence for Incomplete Vertical Phase-mixing in Local Velocity Space with RAVE—Confirmed with Gaia DR2*, Monari, G., Famaey, B., Minchev, I., Antoja, T., Bienaymé, O., Gibson, B. K., Grebel, E. K., Kordopatis, G., McMillan, P., Navarro, J., Parker, Q. A., Quillen, A. C., Reid, W., Seabroke, G., Siebert, A., Steinmetz, M., Wyse, R. F. G., Zwitter, T. 2018, Research Notes of the American Astronomical Society, Volume 2, Issue 2, article id. 32, page 0, doi: [10.3847/2515-5172/aac38e](https://doi.org/10.3847/2515-5172/aac38e)
31. *The GALAH survey: stellar streams and how stellar velocity distributions vary with Galactic longitude, hemisphere, and metallicity*, Quillen, A. C., De Silva, G., Sharma, S., Hayden, M. and the GALAH collaboration, 2018, Monthly Notices of the Royal Astronomical Society, 478, 228-254, doi: <https://doi.org/10.1093/mnras/sty865>
32. *Rings beyond the giant planets*, Sicardy, B., El Moutamid, M., Quillen, A. C., Schenk, P. M., Showalter, M. R., Walsh, K. 2017, Chap 7 in the book **Planetary Ring Systems: Properties**,

**Structure and Evolution** ([www.cambridge.org/9781107113824](http://www.cambridge.org/9781107113824)) edited by Matt Tiscareno and Carl Murray, 2018, Cambridge University Press, <https://arxiv.org/abs/1612.03321>

33. ***Migration in the shearing sheet and estimates for young open cluster migration***, Quillen, A. C., Nolting<sup>u</sup>, E., Minchev, I., De Silva, G., & Chiappini C. 2018, Monthly Notices of the Royal Astronomical Society, 475, 4450-4466. doi: [10.1093/mnras/sty125](https://doi.org/10.1093/mnras/sty125)
34. ***Tilting Styx and Nix but not Uranus with a Spin-Precession-Mean-motion resonance***, Quillen, A. C., Chen, Y.Y., Noyelles, B., & Loane<sup>u</sup>, S. 2018, Celestial Mechanics and Dynamical Astronomy, 130, 11-38. doi: [10.1007/s10569-017-9804-6](https://doi.org/10.1007/s10569-017-9804-6)
35. ***Discovery of a cluster of receding, variable halo stars toward Norma***, Chakrabarti, S., Angeloni, R., Freeman, K., Sargent, B., Simon, J. D., Konorski, P., Gieren, W., Sesar, B., Lipnicky, A., Blitz, L., Basri, G., Vacca, W., Marengo, M., Guhathakurta, P., Quillen, A., Chang, P. 2017, The Astrophysical Journal, 844, 159-168. doi: [10.3847/1538-4357/aa775b](https://doi.org/10.3847/1538-4357/aa775b)
36. ***Obliquity evolution of the minor satellites of Pluto and Charon***, Quillen, A. C., Nichols-Fleming<sup>u</sup>, F., Chen, Y.Y. , Noyelles, B. 2017, Icarus, 293, 94-113. doi: [10.1016/j.icarus.2017.04.012](https://doi.org/10.1016/j.icarus.2017.04.012)
37. ***Dippers and Dusty Disk Edges: new diagnostics and comparison to model predictions***, Bodman\*, E. H. L., Quillen, A. C., Ansdell\*, M., Hippke, M., Boyajian, T. S., Mamajek, E. E, Blackman, E. G., Rizzuto, A., Kastner, J. H., 2017, Monthly Notices of the Royal Astronomical Society, 470, 202-223. doi: [10.1093/mnras/stx1034](https://doi.org/10.1093/mnras/stx1034)
38. ***Disentangling the Circumnuclear Environs of Centaurus A: III. An Inner Molecular Ring, Nuclear Shocks and the CO to warm H2 interface***, Espada, D., Matsushita, S., Miura, R. E., Israel, F. P., Neumayer, N., Martin, S., Henkel, C., Izumi, T., Iono, D., Aalto, S., Ott, J. , Peck, A. B., Quillen, A. C., & Kohno, K. 2017, The Astrophysical Journal, 843, 136-160.
39. ***Hot planetary winds near a star: dynamics, wind-wind interactions, and observational signatures***, Carroll-Nellenback, J., Frank, A., Liu, B., Quillen, A. C., Blackman, E. G., Dobbs-Dixon, I. 2017, The Astrophysical Journal, 466, 2458-2473, doi: [10.1093/mnras/stw3307](https://doi.org/10.1093/mnras/stw3307)
40. ***A coin vibrational motor swimming at low Reynolds number***, Quillen, A. C., Askari, H., Kelley, D. H., Friedmann, T., Oakes, P. W., 2016, Regular and Chaotic Dynamics, vol. 21, issue 7-8, 902-917. doi [10.1134/S1560354716070121](https://doi.org/10.1134/S1560354716070121)
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## TALKS and CONFERENCES

### *Invited Colloquia and Seminars:*

<i>U. Alabama Huntsville, Distinguished lecturer</i>	<i>Feb 2024</i>
<i>APS Bio-physics and physical biology (BPPB)</i> <i>on-line seminar series</i>	<i>Nov 2022</i>
<i>SUNY Geneseo, Astrophysics colloquium</i>	<i>Sept 2022</i>
<i>Flatiron Institute, Center for Computational Astrophysics, colloquium</i>	<i>Mar 2022</i>
<i>Flatiron Institute, Center for Computational Biophysics, seminar</i>	<i>Mar 2022</i>
<i>Institute for Advanced Study/Princeton University Astrophysics colloquium</i>	<i>Sept 2021</i>
<i>Tulane, Dept. of Physics, on-line colloquium</i>	<i>Nov 2020</i>
<i>Yale, 4 Garfinkel Lectures in Dynamical Astronomy</i>	<i>April 2019</i>
<i>Penn State, colloquium</i>	<i>Oct 2018</i>
<i>Observatory of Lund, Sweden, colloquium</i>	<i>May 2018</i>
<i>Nice Observatory, seminaire planetologie</i>	<i>Mar 2018</i>
<i>Nice Observatory, colloquium galactique</i>	<i>April 2018</i>
<i>Leibniz Institut Astrophysik Potsdam, Wempe award lecture, May 2018</i>	
<i>Mt. Stromlo Observatory, RSAA, colloquium</i>	<i>Feb 2018</i>
<i>Monash University, Melbourne, colloquium</i>	<i>Nov 2017</i>
<i>Carnegie, Dept. of Terrestrial Magnetism</i>	<i>Oct 2017</i>
<i>Naval Observatory, colloquium</i>	<i>Oct 2017</i>
<i>Georgetown University, colloquium</i>	<i>Oct 2017</i>
<i>Leibniz Institut Astrophysik Potsdam, 2 Wempe award lectures, July 2017</i>	
<i>Rochester Inst Tech, applied math colloquium</i>	<i>Feb 2017</i>
<i>Queens University, Ontario, colloquium</i>	<i>Nov 2016</i>
<i>Sienna College, colloquium</i>	<i>Sept 2016</i>
<i>SUNY Geneseo, colloquium</i>	<i>Sept 2016</i>
<i>U Rochester, astrophysics seminar</i>	<i>Sept 2016</i>
<i>Arizona State U, seminar</i>	<i>Apr 2016</i>
<i>Yale University, colloquium</i>	<i>Apr 2015</i>
<i>University of Wisconsin, Madison, colloquium</i>	<i>Feb 2015</i>
<i>University of Maryland, colloquium</i>	<i>Nov 2014</i>
<i>Kansas State U., colloquium</i>	<i>Oct 2014</i>
<i>Cornell U., colloquium</i>	<i>Nov 2013</i>
<i>Canadian Inst. Theoretical Astrophysics(Toronto)</i>	<i>Oct 2013</i>
<i>Nanjing University, seminar</i>	<i>June 2013</i>
<i>Hong-kong University, colloquium</i>	<i>May 2013</i>
<i>Technion, Haifa, Israel, lunch seminar</i>	<i>Dec 2012</i>
<i>Kapteyn Institute, Groningen, lunch seminar</i>	<i>Dec 2011</i>
<i>The Ohio State University, colloquium</i>	<i>Oct 2011</i>
<i>Heidelberg, Astronomical Consortia</i>	<i>Jan 2011</i>

<i>Lund Observatory, Sweden, colloquium</i>	<i>Nov 2010</i>
<i>Rochester Institute of Technology, seminar</i>	<i>Feb 2010</i>
<i>Isaac Newton Institute, Cambridge, seminar</i>	<i>Dec 2009</i>
<i>Observatoire de Strasbourg, colloquium</i>	<i>Nov 2009</i>
<i>University of Florida, Colloquium</i>	<i>Oct 2008</i>
<i>University of Florida, Star formation seminar</i>	<i>Oct 2008</i>
<i>Weizmann Institute, Israel, seminar</i>	<i>July 2008</i>
<i>Arizona State University, colloquium</i>	<i>Feb 2008</i>
<i>University of Amsterdam, (NOVA speaker)</i>	<i>Apr 2007</i>
<i>Leiden Observatory, (NOVA speaker)</i>	<i>Apr 2007</i>
<i>University of Utrecht, (NOVA speaker)</i>	<i>Apr 2007</i>
<i>Observatory de Cote d'Azur, Nice, France</i>	<i>Jan 2007</i>
<i>Institute for Advanced Study, Princeton NY, seminar</i>	<i>Feb 2007</i>
<i>Astronomy Society of NY meeting, Skidmore</i>	<i>Oct 2007</i>
<i>Berkeley, Theoretical Astrophysics seminar</i>	<i>Mar 2006</i>
<i>Cambridge (IfA), seminar</i>	<i>Mar 2006</i>
<i>Canadian Institute for Theoretical Astrophysics (CITA) (Toronto)</i>	<i>Nov 2005</i>
<i>Penn State University, colloquium</i>	<i>Oct 2005</i>
<i>Swinburne University, Melbourne, colloquium</i>	<i>May 2005</i>
<i>Monash University, Melbourne, colloquium</i>	<i>May 2005</i>
<i>Mt. Stromlo Observatory, Australian National U.</i>	<i>May 2005</i>
<i>Technion, Haifa, Israel, colloquium</i>	<i>Mar 2, 2005</i>
<i>University of Arizona, LPL, colloquium</i>	<i>Feb 7, 2005</i>
<i>Geneseo College, colloquium</i>	<i>Sept 22, 2004</i>
<i>Ohio-State University, colloquium</i>	<i>Feb 26, 2004</i>
<i>Cornell University, colloquium</i>	<i>Mar 6, 2003</i>
<i>Brockport College, seminar</i>	<i>Feb 27, 2003</i>
<i>University of Maryland, Dept of Astronomy</i>	<i>Feb 16, 2003</i>
<i>Rensselaer Polytechnic Institute, Origins Institute</i>	<i>Oct 16, 2003</i>
<i>U. Rochester</i>	<i>Dec 12, 2003</i>
<i>Technion, Dept physics, seminar</i>	<i>Winter, 2002</i>
<i>Space Telescope Science Institute</i>	<i>Spring 2001</i>
<i>Columbia University</i>	<i>Spring 2001</i>
<i>University of Texas, Austin, colloquium</i>	<i>Spring 2001</i>
<i>UC, Santa Cruz, colloquium</i>	<i>Spring 2001</i>
<i>U. Mass Amherst, Five College Observatory</i>	<i>Spring, 2001</i>
<i>Wesleyan University, seminar</i>	<i>Spring 2001</i>
<i>Michigan State University, colloquium</i>	<i>Winter 2001</i>
<i>Technion- Israel Institute of Technology</i>	<i>Fall 2001</i>
<i>Hebrew College, Jerusalem, seminar</i>	<i>Fall 2001</i>
<i>Space Telescope Science Institute</i>	<i>Winter 2000</i>
<i>University of Arizona, Steward Observatory</i>	<i>Winter 2000</i>

<i>University of Florida, Gainesville, colloquium</i>	<i>Spring 2000</i>
<i>Rutgers University, colloquium</i>	<i>Fall 1998</i>
<i>Tel Aviv University, seminar</i>	<i>Winter 1996</i>
<i>UC San Diego, seminar</i>	<i>Winter 1994</i>
<i>Paris Observatory, seminar</i>	<i>Spring 1994</i>
<i>Observatory of Marseille, seminar</i>	<i>Spring 1994</i>
<i>Yale University, colloquium</i>	<i>Fall 1994</i>
<i>Ohio-State University, colloquium</i>	<i>Fall 1994</i>
<i>Princeton University, seminar</i>	<i>Fall 1992</i>

### ***Invited Talks at Conferences***

<i>TERRA workshop (Lorenz Center, Leiden)</i>	<i>Jan 2023</i>
<i>The Eighth International Meeting on Celestial Mechanics, Rome</i>	<i>Sept 2022</i>
<i>New Horizons Workshop at APL</i>	<i>July 2021</i>
<i>Exoplanets, Max Plank Institut for Astronomy</i>	<i>June 2019</i>
<i>Galaxy in Crisis, Ljubljana, Slovenia</i>	<i>June 2019</i>
<i>IAU334 Postdam, invited review</i>	<i>July 2017</i>
<i>Hunstead Workshop, U Sydney</i>	<i>Dec 2017</i>
<i>UR Workshop on Physical Models for Biological systems</i>	<i>Aug 2016</i>
<i>Division on Dynamical Astronomy Meeting, Nashville</i>	<i>May 2016</i>
<i>ISIMA, University of Toronto, CITA</i>	<i>July 2014</i>
<i>Invited review, IAU 298, Lijiang, China</i>	<i>May 2013</i>
<i>Workshop on Dense systems, Lorenz Center, Leiden</i>	<i>Dec 2011</i>
<i>Invited Review, Goddard Signposts meeting</i>	<i>Oct 2011</i>
<i>Computational workshop, Lorenz Center, Leiden</i>	<i>May 2010</i>
<i>Computational dynamics summer school talk, Lorenz Center</i>	<i>May 2010</i>
<i>Round Table, ASTROGPU, NVIDIA Research Summit</i>	<i>Oct 2009</i>
<i>Round Table, Multi-particle Simulations, NVIDIA Research Summit</i>	<i>Oct 2009</i>
<i>Invited Review, Non-equilibrium dynamics, IAU JD8, Rio</i>	<i>Aug. 2009</i>
<i>Invited Talk, Centaurus A Conference, Sydney, Australia</i>	<i>June 2009</i>
<i>Invited Talk, Chaos in Astronomy, Athens, Greece</i>	<i>Sept 2007</i>
<i>Invited Talk, JPL Workshop on planet/disk interactions</i>	<i>Mar 2008</i>
<i>Garching Workshop on Galaxies</i>	<i>May 1995</i>
<i>Barred Galaxies, Alabama</i>	<i>May 1995</i>

### ***Outreach and Public Lectures***

<i>Rochester Astronomy Club</i>	<i>Oct 2021</i>
<i>Brighton High-school Science Cafe</i>	<i>June 2020</i>
<i>Garfinkel Public Lecture, New Haven CT</i>	<i>April 2019</i>
<i>LLE Colloquium</i>	<i>Oct 2016</i>
<i>Rochester Astronomy Club</i>	<i>Oct 2013</i>
<i>Science Café</i>	<i>Jan 2010</i>
<i>Radio interview, RXXI on Lunar Landing</i>	<i>Spring 2009</i>

<i>Rochester Astronomy Club</i>	<i>May 2009, Mar 2010</i>
<i>LLE Colloquium</i>	<i>April 2009</i>
<i>Buffalo Astronomy Club</i>	<i>Sept 2008</i>
<i>NY Chapter of Image Science and Technology</i>	<i>Fall 2004</i>
<i>Rochester Museum of Science, Distinguished Lecturer</i>	<i>May 19, 2004</i>
<i>Rochester Amateur Astronomy Club Colloquia</i>	<i>Fall 2002, Spring 2008</i>
<i>LLE Colloquium</i>	<i>April 2004</i>
<i>Radio interview, RXI on Planets</i>	<i>Spring 2003</i>
<i>Radio interview RXI on Physics of Music</i>	<i>Dec 2006</i>
<i>Radio interview Albany, NPR, on Planets</i>	<i>Fall 2002</i>

### ***Internal Lectures***

<i>WISE University of Rochester</i>	<i>Nov 2023</i>
<i>Rochester Computer Research Center Technical Talk</i>	<i>Oct 2009, Feb 2011</i>
<i>Workshops in CUDA</i>	<i>June 2008, Feb 2011</i>
<i>REU seminars, Summers</i>	<i>2003, '06, '07, '08, '17, '18</i>
<i>Society for Physics students at UR seminar,</i>	<i>fall 2002, 2021</i>
<i>Graduate research seminar, UR</i>	<i>fall 2002</i>
<i>Introduction for prospective grad students, winter 2002, 2006, 2010</i>	
<i>Astronomy Society of New York,</i>	<i>Oct 4, 2002</i>
<i>RIT/UR internal astronomy meeting</i>	<i>July 2007</i>
<i>Lecture for High School Summer program PREP, Summer 2003, '07, '08, '09, '10</i>	

### ***Organized***

<i>Organizing committee, TERRA workshop on tidal dynamics at the Lorenz Center, Leiden, Jan 2023</i>
<i>UR Multidisciplinary Workshop on Physical Models for Biological systems, with Doug Kelly of Mechanical Engineering UR Aug 2016</i>
<i>UR Multidisciplinary Turbulence workshop, organized with Doug Kelly of Mechanical Engineering UR Aug 2015</i>
<i>Organizing committee, International Summer Institute for Modeling in Astrophysics, Toronto, Summer 2014</i>
<i>Leader GPU programming workshop in CUDA, U Rochester, Feb 2011</i>
<i>Scientific Organizing Committee for conference on Signposts of planets at Goddard Space Flight Center, Oct 2011</i>
<i>Scientific Organizing Committee for the conference Assembling the Puzzle of the Milky Way, Le Grand Bornand, France, April 2011</i>
<i>Scientific Organizing Committee for Division on Dynamical Astronomy meeting Austin Texas April 2011</i>
<i>Scientific Organizing Committee for Planetary Dynamics Conference Heidelberg June 2019</i>
<i>Chair Scientific Organizing Committee Division of Dynamical Society Meeting in Boston May 2010</i>

*Organizer for workshop and summer school on Computational Gravitational Dynamics, Lorenz Center, Leiden May 2010*  
*Leader for GPU programming Workshop in CUDA, U Rochester, June 2008*  
*Organized a program of undergraduate visits on observing runs, Steward Observatory and NOAO, 1998 (also requested the policy that was then set by NOAO allowing free shuttle trips for U of Arizona undergrads)*  
*Journal club organizer 1996-1999, Steward Observatory*  
*Summer Research Seminar, creator and organizer, Steward Observatory, 1998-2001*

### ***Principal Investigator for Multidisciplinary Proposals***

**Title:** Ricochet and Roll-out of Low Velocity Impactors into Granular Media

**Award Period:** 10/01/20-9/30/23

**Source of Support:** NASA/SSW

**Award Amount:** \$712,945

**Title:** Robotic Physics of Miniature Crawlers, Swimmers and Burrowers --- Non-biological Locomotion Strategies in Complex Media

**Award Period:** 07/01/2017- 07/01/2019

**Source of Support:** University Research Award, University of Rochester

**Award Amount:** \$40,000

**Title:** Controlling active oscillating materials with container boundaries and working toward the design of a biodegradable pump

**Award Period:** 07/01/2023- present

**Source of Support:** Feinberg Award, Dept. Physics and Astronomy, University of Rochester

**Award Amount:** \$12,000

### ***Principal Investigator for Theoretical Proposals***

**Title:** Astro-elastodynamics, Measuring Tidally generated heat and torque

**Award Period:** 12/01/17-11/31/20

**Source of Support:** NASA **Award Amount:** \$329,947

**Title:** Stability and Evolution of Multiple Planet and Satellite Systems

**Award Period:** 6/01/13-5/31/16

**Source of Support:** NASA, **Award Amount:** \$322,460

**Title:** The dynamics of disk clearing, late stage planetesimal disk and planetary system evolution

**Award Period:** 09/01/2009-08/31/2012

**Source of Support:** NSF, **Award Amount:** \$289,134

**Title:** Detection of Outer ExtraSolar Planets and Characterization of Disk Properties from Circumstellar Gas and Dust Morphology

**Award Period:** 06/01/04-05/31/08

**Source of Support:** NASA, **Award Amount:** \$265,000

**Title:** Collaborative Proposal: Holding Footprints to the Fire: Planet Disk Theory Confronts Observations

**Award Period:** 08/15/04—07/31/08

**Source of Support:** NSF, **Award Amount:** \$464,945, Additional REU Supplement: + \$26,125

**Title:** The structure of HD100546's self-shadowed circumstellar disk

HST Cycle 15 archival/theory proposal 10972

**Award Period:** 2006

**Source of Support:** Space Telescope Science Institute, **Award Amount:** \$40,000

***Principal Investigator for Observing Proposals***

**Title:** IRS mapping of the 500pc nuclear dust shell in Centaurus A

**Award Period Covered:** 08/10/06 –08/31/09

**Source of Support:** JPL/Spitzer Science Center, **Total Award Amount:** \$86,305

HST Cycle 7 proposal 7868: Near-IR Cores of Radio Galaxies, Are the AGN's Moving in the Galaxy?

HST Cycle 7 proposal 7869: The Morphology of Dense Gas in Seyferts, Obscuration and Fueling of AGNs

HST Cycle 7 proposal 7886: NICMOS Snap Shot Survey of Early-Type Galaxies

**Source of Support:** Space Telescope Science Institute

Cycle 7 HST proposals received over \$100,000 in funding during 1999-2001