

Jason Hyrum Steffen

Assistant Professor, Department of Physics and Astronomy
University of Nevada, Las Vegas

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Citizenship: United States of America

Education

2006: Doctor of Philosophy in Physics (*Advisor: Eric Agol*)

University of Washington, Seattle, Washington

Dissertation: *Detecting New Planets in Transiting Systems*

2003: Master of Science in Physics

University of Washington, Seattle, Washington

2000: Bachelor of Science in Physics and in Mathematics, *Summa Cum Laude*

Weber State University, Ogden, Utah

Research Interests

Extrasolar Planets, Dark Energy, Dark Matter, Gravitation

Academic Employment

2015–Present: Assistant Professor, University of Nevada, Las Vegas

2012–2015: Lindheimer Fellow, Northwestern University

2006–2012: Brinson Postdoctoral Fellow, Fermilab Center for Particle Astrophysics

2001–2006: Research Assistant, University of Washington, Seattle

1999: National Science Foundation REU Intern, Inst. for Nuclear Theory, Seattle, WA

Funded grants as PI

2014–2017: PI, NASA Origins Program, (\$380,000)

2014–2017: PI, NASA Kepler Participating Scientist Program Cycle 3, (\$260,000)

2012–2014: PI, NASA Kepler Participating Scientist Program Cycle 2, (\$170,000)

2009–2012: PI, CHASE (Fermilab T-991). (\$300,000)

2008–2012: PI, NASA Kepler Participating Scientist Program Cycle 1, (\$170,000)

Student Advising

Research Advisor for seven Northwestern undergraduate students and one high school student

Industry/Private Employment

2000–2001: Embedded Software Engineer, L-3 Communications, Salt Lake City, Utah

2000: Pricing Analyst, McLeod USA Telecommunications, Salt Lake City, Utah

Awards

CIERA, NORTHWESTERN UNIVERSITY

Lindheimer Fellowship (2013), CIERA Fellowship (2012)

FERMILAB CENTER FOR PARTICLE ASTROPHYSICS

Fermilab Technology Award (2013), Research Recognition Award (2011), Brinson Postdoctoral Fellowship (2006)

UNIVERSITY OF WASHINGTON, DEPARTMENT OF PHYSICS

Mellam Fellowship (2001), Physics Department Fellowship (2001)

WEBER STATE UNIVERSITY

Weber State University Presidential Commendation Scholarship (1993)

WEBER STATE UNIVERSITY, DEPARTMENT OF PHYSICS

Outstanding Physics Graduate (2000), Paul H. Huish Scholarship (1999), Questar Corporation and Jim Bateman Scholarships (1998), Mary Margaret Clarke Scholarship (1997)

WEBER STATE UNIVERSITY, DEPARTMENT OF MATHEMATICS

Outstanding Mathematics Graduate (2000), Jerry Fields Award (1999)

Service and Committee Work

2015: College of Science Strategic Planning Committee, UNLV

2015: Faculty Advisor for UNLV Society of Physics Students

2014–2015: Astrophysics Seminar Committee member, Northwestern University

2010–2011: Science Organizing Committee member, *First Kepler Science Conference*, Mountain View, CA (December 5-9, 2011).

2011: Local Organizer for Kepler Science Team Meeting, Seattle, WA (January 2011).

2011: Chair of the Science Organizing Committee and Local Organizing Committee, *Laboratory Tests of Dark Energy*, Batavia, IL (October 28-29, 2011).

Reviewer: NASA Origins 2012, 2009, 2008; NASA Postdoctoral Fellowship Program 2014, 2013; NASA Explorer Program 2011; Department of Energy Non-Accelerator Physics 2010

2006–2012: Fermilab Center for Particle Astrophysics: Chalk Talk organizer, Munch organizer, Seminar organizer, webmaster, and various committees member.

Referee for *Astrophysical Journal*, *Astronomy and Astrophysics*, *Monthly Notices of the Royal Astronomical Society*, *Publications of the Astronomical Society of Japan*, *Celestial Mechanics*, *Astroparticle Physics*, and the *Journal of Air Transport Management*

Public Outreach and Media Coverage

Multiple workshops with K-12 school groups and extracurricular youth groups.

Several public lectures including: Adler Planetarium, Clark Planetarium (3x), Augustana College, Waubensee Community College, and various private groups.

Several dozen radio interviews, both live and pre-recorded, including: three appearances on NPR's *Clever Apes*, twice on *Marketplace*, once on *All Things Considered*, multiple interviews with BBC affiliates, and many interviews on a variety of local and syndicated network shows.

Television interviews with PBS (NOVA), Chicago 5 news, CNN, "Rock Center with Brian Williams", as well as coverage on a variety of television, cable, and international news programs, and the premier episode of "This vs. That" by Jon Hotchkiss.

Print and internet coverage of all aspects of my research have appeared in the *New York Times* (front page), *Nature*, *Science*, *New Scientist*, the *Economist*, *PhysOrg.com*, *Wired Magazine*, *Space.com*, *BBC*, and a variety of other outlets around the world. My work was one of *Discover Magazine's* top 100 science stories for 2011.

Bibliography

Statistics: 64 reviewed papers (21 first author), >7500 citations, h index ≥ 42

Peer Reviewed

- 64 **Steffen, J.H.**, “Sensitivity bias in the mass-radius distribution from Transit Timing Variations and Radial Velocity measurements”, MNRAS, Accepted, (2016) arXiv:1510.04750
- 63 **Steffen, J.H.** and Li, G, “Dynamical considerations for life in multihabitable planetary systems”, ApJ, Accepted, (2016) arXiv:1511.09211
- 62 Welsh, W.F. *et al.*, “Kepler 453b—The 10th Kepler Transiting Circumbinary Planet”, ApJ, 809, 26, (2015) arXiv:1409.1605
- 61 **Steffen, J.H.** and Hwang, J.A. “The period ratio distribution of Kepler’s candidate multi-planet systems”, MNRAS, 448, 1956, (2015) arXiv:1409.3320
- 60 Mullaly, F. *et al.* “Planetary Candidates Observed by Kepler VI: Planet Sample from Q1-Q16 (47 Months)”, ApJS, 217, 31, (2015) arXiv:1502.02038
- 59 Rowe, J.F. *et al.* “Planetary candidates observed by Kepler V: Planet sample from Q1-Q12 (36 months)”, ApJ, 217, 16, (2015) arXiv:1501.07286
- 58 Valsecchi, F., Rasio, F.A., and **Steffen, J.H.**, “From hot Jupiters to super-Earths via Roche lobe overflow”, ApJL, 793, 3, (2014) arXiv:1408.3635
- 57 Fabrycky, D.C., *et al.*, “Architecture of Kepler’s Multi-transiting Systems: II. New investigations with twice as many candidates”, ApJ, 790, 146, (2014) arXiv:1202.6328
- 56 Rowe, J.F., *et al.*, “Validation of Kepler’s Multiple Planet Candidates. III: Light Curve Analysis & Announcement of Hundreds of New Multi-planet Systems”, ApJ, 784, 45, arXiv:1402.6534, (2014)
- 55 Lissauer, J.J., *et al.*, “Validation of Kepler’s Multiple Planet Candidates. II: Refined Statistical Framework and Systems of Special Interest”, ApJ, 784, 44, arXiv:1402.6352, (2014)
- 54 Marcy, G., *et al.*, “Masses, Radii, and Orbits of Small Kepler Planets: The Transition from Gaseous to Rocky Planets”, ApJS, 210, 20, arXiv:1401.4195, (2013)
- 53 Upadhye, A. and **Steffen, J.H.**, “Monopole radiation in modified gravity”, PRL, Submitted, arXiv:1306.6113, (2013)
- 52 **Steffen, J.H.** and Farr, W., “A lack of short-period multiplanet systems with close-proximity pairs and the curious case of Kepler 42”, ApJL, 774, L12, arXiv:1306.3526, (2013)
- 51 Borucki, W.J., *et al.*, “Kepler-62: A five-planet system with planets of 1.4 and 1.6 Earth radii in the Habitable Zone”, Science, 340, 587, arXiv:1304.7387, (2013)
- 50 Mazeh, T., *et al.*, “Transit Timing Observations from Kepler: VIII. Catalog of Transit Timing Measurements of the First Twelve Quarters”, ApJS, 208, 16, (2013)
- 49 **Steffen, J.H.**, “Kepler’s Missing Planets”, MNRAS, 433, 3246, (2013) arXiv:1301.2394
- 48 Batalha, N.M., *et al.*, “Planetary Candidates Observed by Kepler, III: Analysis of the First 16 Months of Data”, ApJS, 204, 24, (2013) arXiv:1202.5852
- 47 **Steffen, J.H.**, *et al.*, “Transit Timing Observations from Kepler: VII. Confirmation of 27 planets in 13 multiplanet systems via Transit Timing Variations and orbital stability”, MNRAS, 428, 1077, (2013) arXiv:1208.3499

- 46 **Steffen, J.H.**, *et al.*, “Transit Timing Observations from Kepler: VI. Potentially interesting candidate systems from Fourier-based statistical tests”, *ApJ*, 756, 186, (2012) arXiv:1201.1873
- 45 Ford, E.B., *et al.*, “Transit Timing Observations from Kepler: V. Transit Timing Variation Candidates in the First Seventeen Months from Polynomial Models”, *ApJ*, 756, 185, (2012) arXiv:1201.1892
- 44 Carter, J.A., Agol, E., *et al.*, “Kepler-36: A Pair of Planets with Neighboring Orbits and Dissimilar Densities”, *Science*, 337, 556, (2012) arXiv:1206.4718
- 43 Upadhye, A., **Steffen, J.H.**, and Chou, A.S., “Designing dark energy afterglow experiments”, *PRD*, 86, 035006, (2012) arXiv:1204.5476
- 42 Howard, A.W., *et al.*, “Planet Occurrence within 0.25 AU of Solar-type Stars from Kepler”, *ApJS*, 201, 15, (2012) arXiv:1103.2541
- 41 **Steffen, J.H.**, Upadhye, A., Baumbaugh, A., Chou, A.S., and Tomlin, R., “Anomalous afterglow seen in a chameleon afterglow search”, *PRD*, 86, 012003, (2012) arXiv:1204.5476
- 40 Hooper, D. and **Steffen, J.H.**, “Dark matter and the habitability of planets”, *JCAP*, 07, 046, (2012) arXiv:1103.5086
- 39 **Steffen, J.H.**, *et al.*, “Kepler constraints on planets near hot Jupiters”, *PNAS*, 109, 7982, (2012) arXiv:1205.2309
- 38 Fabrycky, D.C., Ford, E.B., **Steffen, J.H.**, *et al.*, “Transit Timing Observations from Kepler: IV. Confirmation of 4 Multiple Planet Systems by Simple Physical Models”, *ApJ*, 750, 114, (2012)
- 37 **Steffen, J.H.**, Fabrycky, D.C., Ford, E.B., *et al.*, “Transit Timing Observations from Kepler: III. Confirmation of 4 Multiple Planet Systems by a Fourier-Domain Study of Anti-correlated Transit Timing Variations”, *MNRAS*, 421, 2342, (2012)
- 36 Ford, E.B., Fabrycky, D.C., **Steffen, J.H.**, *et al.*, “Transit Timing Observations from Kepler: II. Confirmation of Two Multiplanet Systems via a Non-parametric Correlation Analysis”, *ApJ*, 750, 113, (2012)
- 35 Borucki, W.J., *et al.*, “Kepler-22b: A 2.4 Earth-radius Planet in the Habitable Zone of a Sun-like Star”, *ApJ*, 745, 120 (2012) arXiv:1112.1640
- 34 Welsh, W.F., *et al.*, “Transiting circumbinary planets Kepler-34 b and Kepler-35 b”, *Nature*, 481, 475 (2012)
- 33 Ballard, S., *et al.*, “The Kepler-19 System: A Transiting 2.2 R_{Earth} Planet and a Second Planet Detected via Transit Timing Variations”, *ApJ*, 743, 200 (2011) arXiv:1109.1561
- 32 Lissauer, J.J., *et al.*, “Architecture and Dynamics of Kepler’s Candidate Multiple Transiting Planet Systems”, *ApJS*, 197, 8 (2011) arXiv:1102.0543
- 31 Cochran, W.D., *et al.*, “Kepler 18-b, c, and d: A System Of Three Planets Confirmed by Transit Timing Variations, Lightcurve Validation, Spitzer Photometry and Radial Velocity Measurements”, *ApJS*, 197, 7 (2011) arXiv:1110.0820
- 30 Ford, E.B., *et al.*, “Transit Timing Observations from Kepler: I. Statistical Analysis of the First Four Months”, *ApJS*, 197, 2 (2011) arXiv:1102.0544
- 29 **Steffen, J.H.**, *et al.*, “The architecture of the hierarchical triple star KOI 928 from eclipse tim-

- ing variations seen in Kepler photometry”, MNRAS Letters, 417, L31 (2011) arXiv:1106.4530
- 28 Doyle, L., *et al.*, “Kepler 16: A Transiting Circumbinary Planet”, Science, 16, 333, 6049 (2011) arXiv:1109.3432
- 27 **Steffen, J.H.** and Hotchkiss, J., “Experimental test of airplane boarding methods”, Jour. Air. Trans. Mgmt., 18, 64, (2012) arXiv:1108.5211
- 26 Borucki, W.J., *et al.*, “Characteristics of planetary candidates observed by Kepler, II: Analysis of the first four months of data”, ApJ, 736, 19 (2011) arXiv:1102.0541
- 25 Latham, D.W., *et al.*, “A First Comparison of Kepler Planet Candidates in Single and Multiple Systems”, ApJ Letters, 732, 24 (2011) arXiv:1103.3896
- 24 Batalha, N.M., Borucki, W.J., *et al.*, “*Kepler’s* first rocky planet: Kepler-10b”, ApJ, 729, 27 (2011) arXiv:1102.0605
- 23 Carter, J.A., *et al.*, “KOI-126: a triply-eclipsing hierarchical triple with two low-mass stars”, Science, 331, 562 (2011) arXiv:1102.0562
- 22 Lissauer, J.J., *et al.*, “A closely packed system of low-mass, low-density planets transiting Kepler-11”, Nature (cover story), 470, 53 (2011) arXiv:1102.0291
- 21 Borucki, B., *et al.*, “Characteristics of Kepler Planetary Candidates Based on the First Data Set”, ApJ, 728, 117 (2011) arXiv:1006.2799
- 20 Torres, G., *et al.*, “Modeling *Kepler* Transit Light Curves as False Positives: Rejection of Blend Scenarios for Kepler-9, and Validation of Kepler-9d, a Super-Earth-size Planet in a Multiple System”, ApJ, 727, 24 (2011) arXiv:1008.4393
- 19 **Steffen, J.H.**, Baumbaugh, A., Chou, A.S., Mazur, P.O., Tomlin, R., Upadhye, A., Weltman, A., Wester, W., “Laboratory constraints on chameleon dark energy and power-law fields”, Phys. Rev. Lett., 105, 261803 (2010) arXiv:1010.0988
- 18 **Steffen, J.H.**, *et al.*, “Five Kepler target stars that show multiple transiting exoplanet candidates”, ApJ, 725, 1226, (2010) arXiv:1006.2763
- 17 Holman, M., *et al.*, “Kepler-9: A system of Multiple Planets Transiting a Sun-like Star, Confirmed by Timing Variations”, Science (cover story), 330, 6000, (2010)
- 16 Agol, E., Cowan, N. B., Knutson, H. A., Deming, D., **Steffen, J. H.**, Henry, G. W., Charbonneau, D., “The climate of HD 189733b from fourteen transits and eclipses measured by Spitzer”, ApJ, 721, 1861, (2010), arXiv:1007.4378
- 15 Borucki, B., *et al.*, “Kepler Planet Detection Mission: Introduction and First Results”, Science, 327, 5968, 977 (2010)
- 14 Gilliland, R., *et al.*, “Kepler Asteroseismology Program: Introduction and First Results”, PASP, 122, 131 (2010), arXiv:1001.0139
- 13 Upadhye, A., **Steffen, J.H.**, & Weltman, A., “Constraining chameleon field theories using the GammeV afterglow experiment”, Phys. Rev. D, 81 (1), 015013, (2010), arXiv:0911.3906.
- 12 **Steffen, J.H.**, Moore, M.W., & Boynton, P.E. “Optimal Simultaneous Estimation of Several Linear Parameters in the Presence of Lorentzian Thermal Noise”, Classical and Quantum Gravity, 26, 18, 185009, (2009), arXiv:0803.3199.
- 11 **Steffen, J.H.**, Upadhye, A., “The GammeV suite of experimental searches for axion-like

particles”, Invited Review, *Mod. Phys. Lett. A*, 24, 26, 2053, (2009), arXiv:0908.1529.

- 10 Chou, A.S., Wester, W., Baumbaugh, A., Gustafson, H.R., Irizarry-Valle, Y., Mazur, P.O., **Steffen, J.H.**, Tomlin, R., Upadhye, A., Weltman, A., Yang, X., Yoo, J., “Search for chameleon particles using a photon regeneration technique”, *Phys. Rev. Lett.*, 102, 030402, (2009), arXiv:0806.2438.
- 9 **Steffen, J.H.**, “A statistical mechanics model for free-for-all airplane passenger boarding”, *Am. J. Phys.*, Volume 76, No. 12, pp. 1114-1119 (2008), arXiv:0803.3199.
- 8 **Steffen, J.H.** & Valenzuela, O., “Constraints on the angular distribution of satellite galaxies about spiral hosts”, *MNRAS*, 387, 1199 (2008), arXiv:0712.2363.
- 7 **Steffen, J.H.**, “Optimal boarding method for airline passengers”, *Jour. Air. Trans. Mgmt.*, 14 (3), 146-150 (2008), arXiv:0802.0733.
- 6 Chou, A.S., Wester, W., Baumbaugh, A., Gustafson, H.R., Irizarry-Valle, Y., Mazur, P.O., **Steffen, J.H.**, Tomlin, R., Yang, X., Yoo, J., “Search for axion-like particles using a variable baseline photon regeneration technique”, *Phys. Rev. Lett.*, 100, 080402 (2008), arXiv:0710.3783.
- 5 Agol, E. & **Steffen, J.H.**, “A limit on the presence of Earth-mass planets around a Sun-like star”, *MNRAS*, Volume 374, p. 941 (2007), arXiv:astro-ph/0610159.
- 4 **Steffen, J.H.** & Agol, E., “An analysis of the transit times of TrES-1b”, *MNRAS Letters*, Volume 364, Issue 1, p. 96 (2005), arXiv:astro-ph/0509656.
- 3 Moore, M.W., **Steffen, J.H.**, & Boynton, P.E., “Optimal determination of the equilibrium displacement of a damped harmonic oscillator in the presence of thermal noise”, *Rev. Sci. Inst.*, Volume 76, p. 085106 (2005), arXiv:physics/0412102.
- 2 Agol, E., **Steffen, J.**, Sari, R., & Clarkson, W., “On detecting terrestrial planets with the timing of giant planet transits”, *MNRAS*, Volume 359, Issue 2, pp. 567-579 (2005), arXiv:astro-ph/0412032.
- 1 **Steffen, J.H.**, “Exploring 5th force interactions with 18th century technology”, *IJMPD*, Volume 13, Issue 10, pp. 2249-2254 (2004), arXiv:gr-qc/0503081.

Conference Proceedings and Other

- P14 Essig, R., *et al.*, “Dark Sectors and New, Light, Weakly-Coupled Particles”, Working group report for Intensity Frontier (Snowmass), (2013), arXiv:1311.0029.
- P13 Hewett, J.L., *et al.*, “Fundamental Physics at the Intensity Frontier”, Proceedings of the 2011 workshop on Fundamental Physics at the Intensity Frontier, (2011), arXiv:1205.2671.
- P12 **Steffen, J.H.**, *for the CHASE collaboration*, “The CHASE laboratory search for chameleon dark energy”, Proceedings of Identification of Dark Matter (IDM 2010) Conference, (2010), arXiv:1011.3802v2.
- P11 **Steffen, J.H.**, *for the CHASE collaboration*, “The CHASE laboratory search for chameleon dark energy”, Proceedings of International Conference for High Energy Physics (ICHEP 2010), (2010), arXiv:1011.3802v1.
- P10 Peterson, J. B., *et al.*, “21-cm Intensity Mapping”, white paper submitted to the Astronomy 2010 Decadal Survey, (2009), arXiv:0902.3091.
- P9 **Steffen, J.H.**, *for the GammeV collaboration*, “Constraints on Chameleons and Axion-like

Particles from the GammeV Experiment”, Proceedings of Identification of Dark Matter (IDM 2008), (2008), arXiv:0810.5070.

- P8 Agol, E., Cowan, N.B., Bushong, J., Knutson, H., Charbonneau, D., Deming, D., & **Steffen, J.H.**, “Transits and secondary eclipses of HD 189733 with Spitzer”, Proceedings of IAU Symposium No. 253 ”Transiting Planets”, (2008), arXiv:0807.2434.
- P7 **Steffen, J.H.** & Agol, E., ASP Conference Series, “Developments in Planet Detection using Transit Timing Variations”, *Transiting Extrasolar Planets Workshop* MPIA Heidelberg Germany, Eds: Cristina Afonso, David Wel Drake & Thomas Henning, ASPC, Volume 366, p. 158 (2007), arXiv:astro-ph/0612442.
- P6 **Steffen, J.H.**, Gaudi, B.S., Ford, E.B., Agol, E., Holman, M.J., “Detecting and Characterizing Planetary Systems with Transit Timing”, White paper submitted to the Exoplanet Task Force, (2007), arXiv:0704.0632.
- P5 Boynton, P.E., Bonicalzi, R.M., Kalet, A.M., Kleczewski, A.M., Lingwood, J.K., McKenney, K.J., Moore, M.W., **Steffen, J.H.**, Berg, E.C., Cross, W.D., Newman, R.D., Gephart, R.E., “Gravitation Physics at BGPL”, Proceedings of the Francesco Melchiorri Memorial Conference, New Astronomy Reviews, Volume 51, p. 334 (2007), arXiv:gr-qc/0609095.
- P4 **Steffen, J.H.**, Ph.D. Dissertation, “Detecting new planets in transiting systems”, (2006), arXiv:astro-ph/0609492.
- P3 Berg, E.C., Cross, W.D., Newman, R.D., Boynton, P.E., Moore, M.W., & **Steffen, J.H.**, “Planned tests of the equivalence principle with a cryogenic torsion pendulum”, Contribution to *Testing The Equivalence Principle on Ground and in Space*, Ed. Lammerzahl, C., Everitt, C.W.F., & Ruffini, R., (Springer-Verlag: London), (2005).
- P2 **Steffen, J.H.**, “Symmetry in a perturbed optical system”, (2005), arXiv:physics/0503129.
- P1 Berg, E.C., Bantel, M.K., Cross, W.D., Inoue, T, Newman, R.D., **Steffen, J.H.**, Moore, M.W., & Boynton, P.E., “Laboratory tests of gravitational physics using a cryogenic torsion pendulum”, Proceedings of 10th Marcel Grossman Meeting, Ed. Ruffini, R., et al. (World Scientific: Singapore), (2005), arXiv:gr-qc/0403021.

Invited Talks

EXTRASOLAR PLANETS

- Colloquium: Texas A & M University, College Station, TX (Scheduled October 2015).
- Seminar: University of St. Andrews, St. Andrews, Scotland, UK (June 2015).
- Seminar: Observatoire de Strasbourg, Strasbourg, France (June 2015).
- Seminar: Observatoire Astronomique, Université de Genève, Geneva, Switzerland (May 2015).
- Seminar: Observatoire de Paris, Paris, France (May 2015).
- Colloquium: University of Nevada, Las Vegas, Las Vegas, NV (March 2015).
- Colloquium: Arizona State University, Tempe, AZ (March 2015).
- Colloquium: Washington University, St. Louis, MO (March 2015).
- Seminar: Boston University, Boston, MA (February 2015).
- Seminar: Institut de Recherche en Astrophysique et Planétologie, Toulouse, France (September 2014).
- Seminar: Observatoire de la Côte d'Azur, Nice, France (September 2014).
- Public Lecture: Naperville Astronomical Society, Naperville, IL (June 2014).
- Seminar: Tel Aviv University, Tel Aviv, Israel (December 2013).
- Seminar: University of Utah Physics and Astronomy, Salt Lake City, UT (October 2013).
- Public Lecture: Clark Planetarium, Salt Lake City, UT (October 2013).
- Colloquium: Brigham Young University Physics, Provo, UT (October 2013).
- Seminar: Harvard University Astronomy, Cambridge, MA (September 2013).
- Public Lecture: Clark Planetarium, Salt Lake City, UT (August 2013).
- Colloquium: Cambridge University Astronomy, Cambridge, UK (April 2013).
- Colloquium: UCLA Physics and Astronomy, Los Angeles, CA (April 2013).
- Invited Talk: American Statistical Association Big Data Conference, Chicago, IL (January 2013).
- Colloquium: Northern Illinois University Physics, DeKalb, IL (October 2012).
- Colloquium: Fermilab, Batavia, IL (September 2012).
- Public Lecture: ALCON 2012, Fermilab, Batavia, IL (July 2012).
- Invited Talk: CIPANP Conference 2012, St. Petersburg, FL (May 2012).
- Colloquium: Goddard Space Flight Center, Greenbelt, MD (March 2012).
- Colloquium: Penn State Astronomy, State College, PA (January 2012).
- Public Lecture: Adler Planetarium, Chicago, IL (October 2011).
- Colloquium: Washington University Physics, St. Louis, MO (September 2011).
- Public Lecture: Chicago Astronomical Society, Adler Planetarium, Chicago, IL (May 2011).
- Public Lecture: Chicagland Township Clerks, Chicago, IL (May 2011).

Colloquium: Jet Propulsion Laboratory, Pasadena, CA (April 2011).
Colloquium: Northwestern University Physics and Astronomy, Evanston, IL (March 2011).
Seminar: Northwestern University Physics and Astronomy, Evanston, IL (February 2011).
Public Lecture: Harry Nelson Lecture, Augustana College, Rock Island, IL (October 2010).
Colloquium: Stanford/SLAC Astrophysics, Palo Alto, CA (September 2010).
Invited Talk: Putting our Solar System in Context, Obergurgl, Austria (April 2010).
Public Lecture: Clark Planetarium, Salt Lake City, UT (February 2010).
Seminar: Weber State University Physics, Ogden, UT (February 2010).
Invited Talk: Towards Other Earths, Porto, Portugal (October 2009).
Public Lecture: Waubensee Community College, Sugar Grove, IL (October 2009).
Seminar: Embry Riddle Aeronautical University Physics, Daytona, FL (March 2009).
Seminar: Fermilab Center for Particle Astrophysics, Batavia, IL (February 2009).
Seminar: University of California at Santa Cruz Astronomy, Santa Cruz, CA (November 2008).
Seminar: Carnegie Department of Terrestrial Magnetism, Washington D.C. (March 2008).
Seminar: University of Maryland Astronomy, College Park, MD (March 2008).
Seminar: Johns Hopkins University Center for Astrophysical Sciences, Baltimore, MD (March 2008).

PARTICLE ASTROPHYSICS

Seminar: Thomas Jefferson National Laboratory, Newport News, VA (September 2012).
Invited Talk: 8th Annual Patras workshop on Axions, WIMPs, and Wisps, Chicago, IL (July 2012).
Colloquium: Penn State University Physics, State College, PA (January 2012).
Colloquium: University of Central Florida Physics, Orlando, FL (February 2012).
Seminar: CERN, Geneva, Switzerland (January 2012).
Seminar: DESY, Hamburg, Germany (January 2012).
Colloquium: Northwestern University Physics and Astronomy, Evanston, IL (November 2011).
Seminar, Fermilab Center for Particle Astrophysics, Batavia, IL (November 2011).
Seminar: Washington University Physics, St. Louis, MO (September 2011).
Seminar, Northwestern University Physics and Astronomy, Evanston, IL (April 2011).
Seminar: UCLA Physics, Los Angeles, CA (October 2010).
Seminar: Lawrence Berkeley National Laboratory INPA, Berkeley, CA (September 2010).
Seminar: Fermilab Joint Experimental-Theoretical Seminar, Batavia, IL (August 2010).
Invited Talk: The Dark Side of the Universe, Leon, Mexico, (June 2010).
Colloquium: University of Utah Physics, Salt Lake City, UT. (February 2010).

Seminar: Lawrence Livermore National Laboratory, Livermore, CA (November 2008).

Seminar: University of California at Santa Cruz Physics, Santa Cruz, CA (November 2008).

Seminar: University of Washington Physics, Seattle, Washington (October 2008).

Seminar: Johns Hopkins University Physics, Baltimore, MD (March 2008).

Seminar: University of Maryland Physics, College Park, MD (March 2008).

Seminar: Harvard University Laboratory for Particle Physics and Cosmology, Boston, MA (February 2008).