

**Marc J. Kuchner**

NASA/Goddard Space Flight Center  
Exoplanets and Stellar Astrophysics Laboratory  
Code 667  
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**Expertise**

Direct detection of extrasolar planetary systems. Theory of circumstellar disks and planet formation. Citizen Science and science communication.

**Employment and Education**

Senior Astrophysicist, GS 15, Goddard Space Flight Center, 2014–  
Astrophysicist, GS 14, Goddard Space Flight Center, 2005–2014  
Adjunct Professor, University of Maryland Baltimore County, Department of  
Physics, 2010–  
Adjunct Professor, University of Maryland Department of Physics, 2010–  
Hubble Fellow, Russell Fellow, and Council of Science and Technology Fellow,  
Princeton University, 2003–2005  
Michelson Postdoctoral Fellow, Harvard-Smithsonian Center for Astrophysics, 2000–2003  
Ph. D. Astronomy with a Minor in Physics, Caltech, Thesis *Exozodiacal Dust*  
Advisor: Prof. Michael E. Brown, 2000  
A. B. Physics, Astronomy and Astrophysics with Honors, Harvard University, 1994

**Awards**

SPIE Early Career Award, 2009  
Marquis Who's Who In America, 2006–  
Achievement Rewards for College Scientists Fellowship (\$10 K), 1994–1995  
Westinghouse Science Competition, Semifinalist, 1990  
Harvard University Honors Scholarship, 1990

**Science Teams**

ACESat: Alpha Centauri Exoplanet Satellite Science Team, 2015–  
Planetary Imaging Concept Testbed Using a Recoverable Experiment - Coronagraph  
(PICTURE-C) Science Team, 2014–  
WFIRST-AFTA Study Scientist, 2014–  
NASA Exo-S Starshade Science and Technology Definition Team, 2013–

Science Team, BENI Explorer mission (proposed), 2012-  
 EXCEDE Explorer Mission Proposal Science Team, 2011  
 SPICES ESA Medium-Class Mission Proposal Science Team, 2011  
 NASA Goddard Space Center Astrobiology Team (PI Mike Mumma), 2009-  
 eXtrasolar Planet Characterizer (XPC) Science Team, 2008-2009  
 New Worlds Discoverer Science Team, 2006-  
 Bern International Space Science Institute Team, "Exozodiacal Dust Disks and DARWIN"  
 2007-  
 Terrestrial Planet Finder Coronagraph Science & Technology Definition Team, 2005-2006  
 Chair, Committee on Circumstellar Disks  
 Gemini/Near Infrared Coronagraphic Imager(NICI) Campaign Science Team, 2005  
 Northrop Grumman Space Technology TPF Science Advisory Team, 2003-  
 Space Infrared Interferometric Telescope (SPIRIT) Science Team, 2003-  
 Terrestrial Planet Finder (TPF) Science Working Group, 2002-2004  
 Eclipse Coronagraph Science Team, 2002-  
 Fourier-Kelvin Space Interferometer (FKSI) Science Team, 2002-  
 Princeton Extra-Solar Planets Advanced Mission Concepts Team, 2002  
 Ball Aerospace TPF Architecture Team, 2001

### **Science Communication and Citizen Science**

NASA Citizen Science Forum Steering Group, 2015-  
 JWST Communications Scientist, 2014  
 PI, DiskDetective.org Zooniverse Citizen Science website. Launched 1/28/14.  
 Consultant, NSF Science and Entertainment Exchange, 2014-  
 Nature/Scilogs blogger, 2013-  
 Founder, "Marketing for Scientists" group on facebook.com, 750 members, 2009  
 Science Advisor, Baltimore Museum of Science Planetarium Show, *Beyond  
 the Eight Planets*, 2006  
 Science Advisor, Boston Museum of Science Planetarium Show, *Far Far Away:  
 The Worlds of Star Wars*, 2005

### **Conferences and Seminars Organized**

Scientific Organizing Committee, Planets Around Stellar Remnants meeting, 2012  
 Scientific Organizing Committee, Planets Around Stellar Remnants meeting, 2012  
 Scientific Organizer, NASA GSFC Signposts of Planets meeting, 2011  
 Scientific Organizing Committee, Disks, Meteorites, and Planetesimals meeting, 2010

Scientific Organizing Committee, Extreme Planetary Systems, Santorini, 2007  
Scientific Organizing Committee, TPF/Darwin Conference, 2006  
Founder and Organizer, “Exoplanet Club” Seminar Series, GSFC, 2005–  
Scientific Organizer (1 of 4), Aspen Winter Conference on Planet Formation, 2005  
Organizer, Princeton Conference on General Astrophysics with TPF, 2004  
<http://astro.princeton.edu/~mkuchner/ancillarysci.html>  
Founder, Astrobiology Seminar Series, Princeton University, 2003  
Founder, Planet Formation Discussion Group, Harvard-Smithsonian CfA, 2001

### **Prize Selection and Tenure Review**

Letter writer, Space Telescope Science Institute Tenure Review, 2013  
Letter writer, MacArthur Fellowship, 2013  
SPIE Early Career Award selection committee, 2010–

### **Other Experience and Service**

NASA HQ Research and Analysis Working Group, SERA Program  
Keck/IRTF Management and Operations Working Group, 2009–2011  
NASA TDEM Review Panel, 2009–  
Science Director’s Council, Goddard Space Flight Center, 2007  
Astrophysics Science Division Prize Committee, Goddard Space Flight Center, 2007  
Chair, Lab Chief Search Committee, GSFC Exoplanets and Stellar Astrophys. Lab., 2006  
Subaru HiCiao Adaptive Optics Instrument Preliminary Design Review Panelist, 2005  
Session Chair, STSCI Nearby Resolved Debris Disks Workshop, 2005  
NASA TPF/SSO Review Panelist, 2004, 2005  
Chair, Committee on General Astrophysics and Comparative Planetology  
Aspen Gemini Future Instrumentation Workshop: U.S. Delegate, 2003  
Harvard-Smithsonian CfA Giant Segmented Mirror Telescope Committee, 2002  
Chair, Extrasolar Planets Session, AAS Division of Planetary Sciences Meetings, 2001,2002  
Solar System Dust Panel, Planetary Science Decadal Survey, 2001

### **Mentoring**

#### Ph.D. Students

University of Maryland Baltimore County Physics Student: Erika Nesvold, 2010–  
Recently offered a Postdoctoral Fellowship at Carnegie DTM  
University of Maryland Physics Student: Christopher Stark, 2005–2010  
Recently accepted a Staff Scientist Position at STScI

### Postdoc Mentees

Adler Planetarium Postdoctoral Fellow: Alissa Bans, 2013–  
NASA Postdoctoral Fellow: Margaret Pan, 2013–2014  
NASA Postdoctoral Fellow: Thayne Currie, 2009–2013  
NASA Postdoctoral Fellow: John Debes, 2008–2010  
Michelson Postdoctoral Fellow: Hannah Jang-Condell, 2007–2010  
Goddard NRC Postdoctoral Fellow: Aki Roberge, 2005–

### Additional Thesis Committees

University of Jena Ph. D. student, Christian Vitense, 2012  
SAO Predoctoral Student: Tommy Grav, 2002  
Johns Hopkins University Physics Ph. D. Student: Richard Barry, 2006–

### Interns

University of Oklahoma Ph. D. Student: Steven Silverberg, 2014–  
International Space University Master's Student: Dawoon Jung, 2014  
University of Maryland Astronomy Ph. D. Student: Daniel Jontof-Hutter, 2006  
Eleanor Roosevelt High School Senior Intern: James Greene, 2005  
Princeton Undergraduate Junior Paper: Daniel Miller, 2003  
Harvard Undergraduate Senior Thesis: Sean Moran, 2002  
Harvard REU Summer Student: Joannah Metz, 2002

## Teaching

Lecturer in Astronomy, Rio Hondo College, 1996  
Instructor, Johns Hopkins University Center for Talented Youth, 1994

## Popular Book

*Marketing for Scientists: How to Shine in Tough Times*, Island Press, November 2011  
Nautilus Book Awards Silver Winner, 2012  
Axiom Business Book Awards, Gold Medal, 2012  
AudioBook published by Audible, November 2013

## Grants

Co-I, NASA Solar System Workings Grant, *Optical Tomographic Map of the Zodiacal Cloud from STEREO Data*, \$570K (selectable)  
PI, NASA ADAP Grant *Disk Detective: Finding Circumstellar Disks with WISE and 100,000 New Colleagues*, 300\$K  
PI, NASA Emerging Worlds Grant *Investigating the history of destructive collisions in the asteroid and Kuiper belts*, 200\$K

- PI, NASA Astrophysics Theory Grant *Probing the debris disk-planet connection with collisional cascades*, 200\$K
- PI, NASA Exoplanets Grant *Probing the debris disk-planet connection with collisional cascades*, 200\$K
- Co-I, NASA Astrobiology Institute CAN 7 Grant *Origin and Evolution of Organics and Water in Planetary Systems*, \$5M
- PI, HST Theory Grant, *SMACK: A New Tool for Modeling Images of Debris Disks* (\$110 K), 2014
- Co-I, ALMA Cycle 2 Grant *Confirming the recent collisional destruction of an extra-solar Pluto*, (\$27 K, PI Christopher Stark, NASA GSFC), 2014
- Co-I GPI observing proposal *Spectrophotometry of the HR 8799 Planets*, (PI Thayne Currie, University of Toronto), 2014
- Co-I Whipple Observatory observing proposal *Spectra Typing of Debris Disk Candidates from WISE/Disk Detective* (PI Scott Kenyon), 2014
- PI, NASA Planetary Geology & Geophysics Grant, *Resonances and Collisions in the Zodiacal Cloud: The Next Generation of Dynamical Models*, (\$280K) 2012
- Co-I, HST Grant, *Imaging Disk-Planet Interactions in the Beta Pictoris Disk*, 2011
- Co-I, HST Grant, *Probing for Exoplanets Hiding in Dusty Debris Disks: Inner < 10 AU Disk Imaging, Characterization, and Exploration*, 2011
- Co-I, Herschel Grant, *Close Binaries with Infrared Excess: Destroyers of Worlds?*, 2010
- Co-I, NASA Origins Program, *Finding the Needle in the Haystack: Realistic Simulations of ExoEarth Observations in the Presence of Exozodiacal Dust* (\$272 K), 2010
- PI, SIM Science Study, *Measuring Shapes and Sizes of Kuiper Belt Objects with the Space Interferometry Mission* (\$75 K), 2008
- PI, Keck Interferometer Nuller Key Science Team, *Follow-up Observations of Circumstellar Disks with the Keck Interferometer Nuller: Morphology, Mineralogy, Variability and Signs of Hidden Planets* (\$44 K), 2008
- PI, HST Theory Grant, *Modeling Coronagraphic Images of Beta Pictoris and other Debris Disks with Gas* (\$73 K), 2007
- Co-I, HST Grant, *High Contrast Imaging of Dusty White Dwarfs* (\$55 K), 2007
- Co-I, Spitzer Grant, *Time Variable Accretion in White Dwarfs with Debris Disks* (\$22 K), 2007
- Co-I, Spitzer Grant, *Directly Detecting a Planet around a White Dwarf* (\$38 K), 2007
- Co-I, EPOCh Discovery Mission, Phase A Concept Study, 2007
- Co-I, FQXi Grant, *The Characterization and Search for Life on Hot Rocky Exoplanets* (\$65 K), 2007
- Co-I, Spitzer Grant, *Resolving Mysteries: Ultra-Cool White Dwarfs and the Age of*

- The Galaxy* (\$71 K), 2006
- Co-I, *Spitzer* Grant, *Dust around solitary millisecond pulsars* (\$20 K), 2006
- Co-I, CorSpec TPF-C Instrument Concept Study (\$ 300 K), 2005
- Co-I, CorCam TPF-C Instrument Concept Study (\$ 300 K), 2005
- Co-I , Mag30Cam TPF-C Instrument Concept Study (\$ 300 K), 2005
- Co-I, ARPA Grant, *Development of Binary Silicon Free Standing Image Masks for TPF-C* (\$ 300 K), 2005
- Co-I, *Spitzer* Grant, *Follow-up Study of Unusual White Dwarfs: Planets, Disks, and Deep 8 Micron Deficits* (\$72 K), 2005
- PI, *Spitzer* Grant, *Survey for Planets and Exozodiacal Dust Around White Dwarfs* (\$57 K), 2004
- Co-I, NASA Origins Grant, *Spectra and Biomarkers of Extrasolar Planets* (\$100 K), 2003–2005
- Science PI, Keck Interferometer Nuller Commissioning Science Team, *Circumstellar Disk Detection with the Keck Nuller* (\$210 K), 2003–2004
- Co-I, Keck Interferometer 2-Micron Commissioning Science Team, *Resolving Young Stellar Objects on Sub-AU Scales* (\$110 K), 2002–2003

### Publications in Refereed Journals

- “SEEDS Adaptive Optics Imaging of the Asymmetric Transition Disk Oph IRS 48 in Scattered Light” by Follette, K. B., and 62 colleagues *The Astrophysical Journal*, Vol. 798, pg 132 (2015)
- “Gap Clearing by Planets in a Collisional Debris Disk” by Nesvold, E. R. and Kuchner, M. J. *The Astrophysical Journal*, Vol. 798, pg. 83 (2015)
- “Constraining the Exozodiacal Luminosity Function of Main-sequence Stars: Complete Results from the Keck Nuller Mid-infrared Surveys.” by Mennesson, B., and 16 colleagues, *The Astrophysical Journal*, Vol. 797, pg. 119, (2014)
- “Deep Thermal Infrared Imaging of HR 8799 bcde: New Atmospheric Constraints and Limits on a Fifth Planet.” by Currie, T., and 12 colleagues, *The Astrophysical Journal*, Vol. 795, pg. 133, 2014
- “The Gemini NICI Planet-Finding Campaign: The Orbit of the Young Exoplanet  $\beta$  Pictoris b.” by Nielsen, E. L., and 14 colleagues, *The Astrophysical Journal*, Vol. 794, pg. 158. (2014)
- “Probing for Exoplanets Hiding in Dusty Debris Disks: Disk Imaging, Characterization, and Exploration with HST/STIS Multi-roll Coronagraphy.” by Schneider, G., and 18 colleagues, *The Astronomical Journal*, Vol. 148, pg. 59 (2014)
- “Revealing Asymmetries in the HD 181327 Debris Disk: A Recent Massive Collision or Interstellar Medium Warping” by Stark, C. C., Schneider, G., Weinberger, A.J., Debes,

J.H., Grady, C.A., Jang-Condell, H., Kuchner, M.J. *Astrophysical Journal*, Vol. 789, pg. 58 (2014)

“The Gemini NICI planet-finding campaign: The offset ring of HR 4796 A.” by Wahhaj, Z., Liu, M. C., Biller, B. A., Nielsen, E. L., Hayward, T. L., Kuchner, M., Close, L. M., Chun, M., Ftaclas, C., Toomey, D. W. *Astronomy and Astrophysics*, Vol. 567, pg. 34 (2014)

“The Spitzer Infrared Spectrograph Debris Disk Catalog. I. Continuum Analysis of Unresolved Targets” by Chen, C. H., Mittal, T., Kuchner, M.J., Forrest, W.J., Lisse, C.M., Manoj, P., Sargent, B.A., & Watson, D.M. *Astrophysical Journal Supplement*, Vol. 211, pg. 25, (2014)

“SMACK: A New Algorithm for Modeling Collisions and Dynamics of Planetesimals in Debris Disks” by Nesvold, E. R., Kuchner, M. J., Rein, H., & Pan, M. *Astrophysical Journal*, Vol. 777, pg.144 (2013)

“Sharp Eccentric Rings in Planetless Hydrodynamical Models of Debris Disks” by Lyra, W. & Kuchner, M. *Nature*, Vol. 499, pg. 184 (2013)

“The Exozodiacal Dust Problem for Direct Observations of Exo-Earths” by Roberge, A. et al. *PASP*, Vol. 124, pg. 799 (2012)

“Direct Imaging Confirmation and Characterization of a Dust-enshrouded Candidate Exoplanet Orbiting Fomalhaut” by Currie, T. et al. *Astrophysical Journal*, Vol. 760, pg. 32 (2012)

“The Keck Interferometer Nuller by Serabyn, E., Mennesson, B., Colavita, M. M., Koresko, C., and Kuchner, M. J. *Astrophysical Journal*, Vol. 748, pg. 55, (2012)

“A 5  $\mu$  m Image of  $\beta$  Pictoris b at a Sub-Jupiter Projected Separation: Evidence for a Misalignment Between the Planet and the Inner, Warped Disk” by Currie, T., Thalmann, C., Matsumara, S., Madhusudan, N., Burrows, A., & Kuchner, M. *Astrophysical Journal*, Vol. 736, pg. 33, (2011)

“Exo-Zodiacal Dust Levels for Nearby Main-Sequence Stars: A Survey with the Keck Interferometer Nuller” by Millan-Gabet, R., Serabyn, E., Mennesson, B., Traub, W.A., Barry, R.K., Danchi, W.C., Kuchner, M. J., Ragland, S., Stapelfeldt, K., Bryden, G., & Colavita, M.M. 2011 *Astrophysical Journal*, Vol. 734, pg. 67, (2011)

“Measuring the sizes, shapes, surface features and rotations of Solar System objects with interferometry” by Li, J-Y, Kuchner, M.J., Allen, R.J. & Sheppard, S.S. *Icarus* Vol. pg. 1007, (2011)

“Collisional Grooming Models of the Kuiper Belt Dust Cloud” by Kuchner, M. J. & Stark, C.C. *Astrophysical Journal*, Vol. 140, pg. 1007, (2010)

“Close Binaries with Infrared Excess: Destroyers of Worlds?” by Matranga, M., Drake, J. J., Kashyap, V. L., Marengo, M., & Kuchner, M. J., *Astrophysical Journal Letters*, Vol. 720, pg. 164, (2010)

“The Gemini NICI Planet-finding Campaign: Discovery of a Close Substellar Companion to the Young Debris Disk Star PZ Tel” by Biller, B. A et al. *Astrophysical Journal*, Vol. 720, pg. 82, (2010)

“Radiative Transfer Models of a Possible Planet in the AB Aurigae Disk” by Jang-Condell, H. & Kuchner, M.J., *Astrophysical Journal*, Vol. 714, pg. 142, (2010)

“A New Algorithm for Self-consistent Three-dimensional Modeling of Collisions in Dusty Debris Disks” by Stark, C.C. & Kuchner, M. J., *Astrophysical Journal*, Vol. 707, pg. 543, (2009).

“51 Ophiuchus: A Possible Beta Pictoris Analog Measured with the Keck Interferometer Nuller” by Stark, C.C., Kuchner, M.J., Traub, W., Monnier, J.D., Serabyn, E., Colavita, M., Koresko, C., Mennesson, B., & Keller, L.D., *Astrophysical Journal*, Vol. 703, pg. 1188, (2009).

“Interstellar Medium Sculpting of the HD 32297 Debris Disk” by Debes, J.H., Weinberger, A.J. & Kuchner, M.J. *Astrophysical Journal*, Vol. 702, pg. 318, (2009).

“The Detectability of Exo-Earths and Super-Earths Via Resonant Signatures in Exozodiacal Clouds” by Stark, C.C. & Kuchner, M. J., *Astrophysical Journal*, Vol. 686, pg. 637, (2008).

“Milliarcsecond N-Band Observations of the Nova RS Ophiuchi: First Science with the Keck Interferometer Nuller” by Barry, R.K. et al. *Astrophysical Journal*, Vol. 677, pg. 1253, (2008).

“Mass-Radius Relationships for Solid Exoplanets” by S. Seager, M. J. Kuchner, C. A. Hier-Majumder and B. Militzer, *Astrophysical Journal*, Vol. 669, pg. 1279, (2007).

“The New Class of Dusty DAZ White Dwarfs” by T. von Hippel, M. J. Kuchner, M. Kilic, F. Mullally, W. T. Reach and D. E. Winget, to appear in the *Astrophysical Journal*.

“A Spitzer White Dwarf Infrared Survey” by F. Mullally, M. Kilic, W. T. Reach, M. J. Kuchner, T. von Hippel, A. Burrows, and D. E. Winget, to appear in the *Astrophysical Journal Supplement*, (2006).

“Theoretical Limits on Extrasolar Terrestrial Planet Detection with Coronagraphs” by O. Guyon, E. A. Pluzhnik, M. J. Kuchner, B. Collins, and S. T. Ridgway, *Astrophysical Journal Supplement*, Vol. 167, pg. 81, (2006).

“No Expanding Fireball: Resolving the Recurrent Nova RS Ophiuchi with Infrared Interferometry” by J. D. Monnier, R. K., Barry, W. A., Traub, B. F., Lane, R. L. Akeson, S. Ragland, P. A. Schuller, H. Le Coroller, J. -P. Berger, R. Millan-Gabet, E. Pedretti, F. P. Schloerb, C. Koresko, N. P. Carleton, M. G. Lacasse, P. Kern, F. Malbet, K. Perraut, M. J. Kuchner, and M. W., Muterspaugh, *Astrophysical Journal*, Vol. 647, pg. L127, (2006).

“Laboratory Testing of a Lyot Coronagraph Equipped with an Eighth-Order Notch Filter Image Mask” by J. R. Crepp, J. Ge, A. D. Vanden Heuvel, S. P. Miller, and M. J. Kuchner, *Astrophysical Journal*, Vol. 646, pg. 1252, (2006).



“The Importance of Phase in Nulling Interferometry and a Three Telescope Closure-Phase Nulling Interferometer Concept” by W. C. Danchi, J. Rajagopal, M. Kuchner, J. Richardson, and D. Deming, *Astrophysical Journal*, Vol. 645, pg. 1554, (2006).

“The Orbit and Occultations of KH 15D” by J.N. Winn, C.M. Hamilton, W.J. Herbst, J.L. Hoffman, M.J. Holman, J.A. Johnson and M.J. Kuchner, *Astrophysical Journal*, Vol. 644, pg. 510, (2006).

“The Mystery Deepens: Spitzer Observations of Cool White Dwarfs” by M. Kilic, T. von Hippel, F. Mullally, W. T. Reach, M. J. Kuchner, D. E. Winget, A. Burrows, and D. Saumon, *Astrophysical Journal*, Vol. 642, pg. 1051, (2006).

“Keck Interferometer Observations of FU Orionis Objects” by R. Millan-Gabet et al., *Astrophysical Journal*, Vol. 641, pg. 547, (2006).

“The Dust Cloud Around the White Dwarf G29-39” by W. T. Reach, M. J. Kuchner, T. von Hippel, A. Burrows, F. Mullally, M. Kilic, and D. E. Winget, *Astrophysical Journal Letters*, Vol. 635, pg. 161, (2005).

“Eighth-Order Image Masks for Terrestrial Planet Finding” by M. J. Kuchner, J. Crepp, and J. Ge, *Astrophysical Journal*, Vol. 628, pg. 466, (2005).

“The Near-Infrared Size-Luminosity Relations for Herbig Ae/Be Disks” by J. D. Monnier et al. 2004, *Astrophysical Journal*, Vol. 624, pg. 832, (2005).

“The Dynamical Influence of a Planet at Semimajor Axis 3.4 AU on the Dust Around  $\epsilon$  Eridani” by S. M. Moran, M. J. Kuchner and M. J. Holman, *Astrophysical Journal*, Vol. 612, pg. 1163, (2004).

“A Minimum-Mass Extrasolar Nebula” by M. J. Kuchner, *Astrophysical Journal*, Vol. 612, pg. 1147, (2004).

“Using Notch Filter Masks for High Contrast Imaging of Extrasolar Planets” by J. H. Debes, J. Ge, M. J. Kuchner and M. Rogosky, *Astrophysical Journal*, Vol. 608, pg. 1095, (2004).

“Detection of Close-In Extrasolar Giant Planets Using the Fourier-Kelvin Stellar Interferometer” by W. C. Danchi, D. Deming, M. J. Kuchner and S. Seager, *Astrophysical Journal Letters*, Vol. 597, pg. L57 (2003).

“Volatile-Rich Earth-Mass Planets in the Habitable Zone” by M. J. Kuchner, *Astrophysical Journal Letters*, Vol. 596, pg. L105 (2003).

“Notch Filter Masks: Practical Image Masks for Planet-Finding Coronagraphs” by M. J. Kuchner and D. N. Spergel, *Astrophysical Journal*, Vol. 594, pg. 617, (2003).

“The Geometry of Resonant Signatures in Debris Disks with Planets” by M. J. Kuchner and M. J. Holman, *Astrophysical Journal*, Vol. 588, pg. 1110, (2003).

“Halting Planet Migration in the Evacuated Centers of Protoplanetary Disks” by M. J. Kuchner and M. Lecar, *Astrophysical Journal Letters*, Vol. 574, pg. L87 (2002).

“Long-Term Dynamics and the Orbital Inclinations of the Classical Kuiper Belt Objects” by M. J. Kuchner, M. E. Brown, and M. Holman, *Astronomical Journal*, Vol. 124, pg. 1221 (2002).

“Structure in the Dusty Debris Around Vega” by D. J. Wilner, M. J. Holman, M. J. Kuchner, and P. T. P. Ho, *Astrophysical Journal Letters*, Vol. 569, pg. 115 (2002)

“A Coronagraph with a Band-Limited Mask for Finding Terrestrial Planets” by M. J. Kuchner and W. Traub, *Astrophysical Journal*, Vol. 570, pg. 900 (2002).

“Ground-Based Coronagraphy with High Order Adaptive Optics” by A. Sivaramakrishnan, C. D. Koresko, R. B. Makidon, T. Berkefeld, and M. J. Kuchner, *Astrophysical Journal*, Vol. 552, pg. 397 (2001).

“Interferometric Detection of Pulsations of the Cepheid  $\zeta$  Geminorum” by B. F. Lane, M. J. Kuchner, A. F. Boden, M. Creech-Eakman and S. R. Kulkarni, *Nature*, Vol. 407, pg. 485 (2000).

“A Search for Exozodiacal Dust and Faint Companions around Sirius, Procyon, and Altair with the NICMOS Coronagraph” by M. J. Kuchner and M. E. Brown, *Publications of the Astronomical Society of the Pacific*, Vol. 112, pg. 827 (2000).

“A Search for Resonant Structures in the Zodiacal Cloud with COBE DIRBE: The Mars Wake and Jupiter’s Trojan Clouds” by M. J. Kuchner, W. T. Reach and M. E. Brown, *Icarus*, Vol. 145, pg. 44 (2000).

“The Visual Orbit of 64 Piscum” by A. Boden et al. *Astrophysical Journal*, Vol. 527, pg. 360 (1999).

“The Energetic Afterglow of the Gamma-Ray Burst of 14 December 1997” by A. N. Ramaprakash et al., *Nature*, Vol. 393, pg. 43 (1998).

“Keck Speckle Imaging of the White Dwarf G29-38: No Brown Dwarf Companion Detected” by M. J. Kuchner, C. D. Koresko, and M. E. Brown, *Astrophysical Journal Letters*, Vol. 508, pg. L81 (1998).

“An 11.6 Micron Keck Search For Exo-Zodiacal Dust” by M. J. Kuchner, M. E. Brown and C. D. Koresko, *Publications of the Astronomical Society of the Pacific*, Vol. 110, pg. 1336 (1998).

“Evidence for Ni-Co-Fe decay in Type Ia Supernovae” by M. J. Kuchner, R. P. Kirshner, P. A. Pinto, and B. Leibundgut, *Astrophysical Journal Letters*, Vol. 426, pg. L89 (1994).

### Invited Review Papers

“Planets Around Pulsars, White Dwarfs, and Other Evolved Stars” by A. Wolszczan and M. J. Kuchner, in *Exoplanets*, S. Seager, ed., Univ. Arizona Press, (2010).

“General Astrophysics with the Optical Terrestrial Planet Finder Mission” K. Stapelfeldt, C. Beichman, and M. Kuchner, *New Astronomy* Vol. 49, pg. 396, (2005)

“Planetary Perturbers in Debris Disks” by M. J. Kuchner, *Earth, Moon and Planets: First Decadal Review of the Kuiper Belt* eds. J. Davies and L. Barrera, (2003)

“Terrestrial Planet Finding with a Visible Light Coronagraph” by M. J. Kuchner and D. N. Spergel, *Scientific Frontiers in Research on Extrasolar Planets*, ASP Conference Series, Vol. 294, pg. 603, eds. D. Deming and S. Seager, astro-ph/0305522, (2003).

“Keck Interferometer Nuller Shared-Risk Science Program” by M. J. Kuchner, *Hunting for Planets: Ground-based European Nulling Interferometry Experiment Workshop*, <http://www.strw.leidenuniv.nl/~genie/abstracts/kuchner.html>, (2002).

### Invited Talks

Carnegie DTM Exoplanet Seminar 1/15

Yale School of Engineering and Applied Science Marketing for Scientists workshop 12/14

National Capital Area Astronomers meeting 9/14

Princeton Exoplanet Seminar 6/14

Intelligence Community Postdoctoral Colloquium, 4/14

STScI Star & Planet Formation Seminar, 1/14

Presentation to the NRC Committee on the WFIRST AFTA mission concept, 1/14

Goddard Astrophysics Colloquium, 11/13

Tufts University, Marketing for Scientists workshop, 10/13

Harvard Medical School, Marketing for Scientists workshop, 10/13

Boston University, Marketing for Scientists workshop, 10/13

Harvard Smithsonian Center for Astrophysics, Star and Planet Formation Seminar 10/13

The Scripps Research Institute, Marketing for Scientists workshop, 9/13

Maria Mitchell Observatory, Public talk, 7/13

Argonne National Laboratory, Marketing for Scientists workshop, 6/13

Invited two-hour workshop on Marketing for Innovators, Game Changing Development Program group at NASA Langley 3/13

Astronomy Dept. Colloquium, Penn State, 2/13

Astronomy Dept. Colloquium, U. Arizona, 1/13

University of Arizona, Marketing for Scientists workshop, 1/13

Physics Colloquium, University of Maryland Baltimore County, 11/12

Physics Colloquium, U.Toledo 11/12

Cosmic Dust Conference, Kobe, Japan, 8/12

ESO Santiago, Chile, Seminar Series, 7/12

University of Jena, Germany, Astronomy Colloquium 5/12

NSF Astronomy and Astrophysics Postdoc Fellows Symposium, 1/12

Planets Around Stellar Remnants Conference, Puerto Rico, 1/12

University of Maryland School of Medicine, Marketing for Scientists workshop, 12/11  
University of Florida, Astronomy Colloquium, 11/11  
City of Hope Cancer Center, Marketing for Scientists workshop, 11/11  
Nature Conservancy Science Meeting, 10/11  
University of Delaware, Physics Colloquium, 10/10  
NASA Headquarters Science Seminar, 4/10  
University of Maryland Career Paths Seminar, 4/10  
American Association of Physics Teachers Meeting, 2/10  
NASA Headquarters Marketing for Scientists Workshop, 1/10  
Dynamics of Outer Planetary Systems Conference, Edinburgh, 11/09  
Probing the Diversity of Brown Dwarfs and Exoplanets Conference, Shanghai, 7/09  
Lawrence Livermore National Laboratory, Colloquium, 4/08  
Berkeley Astronomy Department Colloquium, 4/08  
Space Telescope Science Institute, Star and Planet Formation Seminar, 4/08  
Extreme Solar Systems International Conference, Santorini, 6/07  
University of Hawaii, Astronomy Colloquium, 3/07  
University of Washington, Astronomy Colloquium, 1/07  
The 3rd Workshop on Development of Extra-solar Planetary Science, Tokyo, 12/06  
TPF/Darwin Conference 2006, 11/06  
Caltech Planetary Science Department, Seminar, 5/06  
Carnegie Institution of Washington, Dept. of Terrestrial Magnetism, Seminar, 2/06  
University of Grenoble Observatory (LAOG), Seminar, 2/06  
European Research Course in Atmospheres (ERCA), Grenoble, 2 Lectures, 2/06  
Institute of Astronomy (IAP), Pierre and Marie Curie Univ., Paris, Seminar, 1/06  
University of Maryland, Department of Astronomy, Seminar 12/05  
George Washington University, Department of Physics, Colloquium 11/05  
University of Maryland, Department of Astronomy, Colloquium 11/05  
Goddard Space Flight Center, Astrobiology Seminar, 11/05  
Amazing Light: A Symposium in Honor of Charles Townes, 10/05  
University of Hawaii, Colloquium, 9/05  
University of Kyoto Dept. of Physics, Seminar, 5/05  
Early Earth Meeting, Makuhari, Japan, 5/05  
National Astronomical Observatory of Japan, Colloquium, 5/05  
University of Tokyo, Tokyo Area Planet Formation Seminar, 5/05  
Space Telescope Science Institute, Colloquium, 3/05  
Space Telescope Science Institute, Seminar, 12/04

University of Michigan, Department of Astronomy, Colloquium, 12/04  
 Penn State University, Department of Astronomy and Astrophysics, Colloquium, 10/04  
 University of Florida, Department of Astronomy, Colloquium, 10/04  
 University of Delaware, Physics Colloquium, 5/04  
 University of Toronto, Department of Astronomy and Astrophysics, Colloquium, 5/04  
 American Museum of Natural History, Astrophysics Seminar, 5/04  
 Goddard Space Flight Center, LASP Division Seminar, 4/04  
 Kavli Institute of Theoretical Physics, Planet Formation Conference, 3/04  
 University of Texas at Austin, Department of Astronomy, Colloquium, 3/04  
 Institute for Advanced Study, Planet Formation Working Group Seminar, 3/04  
 Coronagraphic Methods for the Detection of Terrestrial Planets, Lorentz Center Workshop,  
 2/04  
 University of Pennsylvania, Department of Astronomy, Colloquium, 11/03  
 Stony Brook University, Department of Physics and Astronomy, Seminar, 10/03  
 Maryland Astrophysics Conference: The Search for Other Worlds, 10/03  
 Princeton University, Department of Astrophysical Sciences, Colloquium, 9/03  
 International Astronomical Union General Assembly: Star Formation at High Angular  
 Resolution, 8/03  
 University of Michigan, Department of Astronomy, Colloquium, 3/03  
 University of Toronto, Department of Astronomy and Astrophysics, Colloquium, 2/03  
 Carnegie Institution of Washington, Dept. of Terrestrial Magnetism, Colloquium, 2/03  
 Penn State University, Department of Astronomy and Astrophysics, Colloquium, 12/02  
 Dartmouth University, Physics Colloquium, 4/02  
 Lunar and Planetary Institute, Seminar, 3/02  
 University of Arizona, Department of Astronomy, Seminar, 3/00

### Selected Conference Proceeding

“A Spectroscopic Search For Massive Thorne-Żytkow Objects” by M. J. Kuchner, D. Vakil, V. V. Smith, D. L. Lambert, B. Plez, and E. S. Phinney, *Stellar Collisions, Mergers, and Their Consequences*, ed. M. Shara, ASP Conference Series, Vol. 263, pg. 131 (2000).

### Popular Science Articles

“Five Billion Years of Solitude: The Search for Life Among the Stars” by M.J. Kuchner in *Physics Today*, December 2014

“Careers: Forget about Networking” by M.J. Kuchner in *Physics World*, February 2013

“A Cosmic Tease: Trials of the Herschel Space Telescope Science Teams” by M.J. Kuchner in *NASA Space Place*, October, 2012

“A Brand New Age: Queue Observing at Mt. Paranal by M.J. Kuchner in *NASA Space Place*, August 2012

“Dead Stars and Doomed Planets” by J.H. Debes and M. J. Kuchner in *Astronomy Magazine*, March 2012

“Marketing for Scientists: A Book about the Business of Doing Science” by M. J. Kuchner in AstroBetter Blog, 2/15/12

“The Open Science Paradox” by M. J. Kuchner in *Scientific American Blogs*, January 2012

“Interplanetary matter” by M. J. Kuchner in *The McGraw-Hill Encyclopedia of Science & Technology* (New York: McGraw-Hill) (2011).

“Hungry for Jobs and for Change, Scientists Join the Occupy Movement” by M. J. Kuchner in *Scientific American Blogs*, October 2011

“Optimism and Enthusiasm: Lessons for Scientists from Steve Jobs” by M. J. Kuchner in *Scientific American Blogs*, October 2011

Direct-Imaging Planets by M. J. Kuchner in *The Encyclopedia of Astrobiology*, Springer, 2010

Fomalhaut b by M. J. Kuchner in *The Encyclopedia of Astrobiology*, (New York: Springer), 2010

GJ 758 b by M. J. Kuchner in *The Encyclopedia of Astrobiology*, (New York: Springer), 2010

HR 8799 by M. J. Kuchner in *The Encyclopedia of Astrobiology*, (New York: Springer), 2010

TPF/Darwin by M. J. Kuchner in *The Encyclopedia of Astrobiology*, (New York: Springer), 2010

“Exozodiacal Dust: A Planet Hunter’s Worst Best Friend” by M. J. Kuchner and C.C. Stark in *Astronomy Magazine*, May 2010. “Interplanetary matter” by M. J. Kuchner in *The McGraw-Hill Encyclopedia of Science & Technology* (New York: McGraw-Hill) (2007).

“Interplanetary matter” by M. J. Kuchner in *The McGraw-Hill Encyclopedia of Science & Technology* (New York: McGraw-Hill) (2000).

### **“Ask Astro” Articles in Astronomy Magazine**

“Do White Dwarfs Have Goldilocks Zones” August, 2014

“Do Gas Giant Planets have Discernable Surfaces?” February, 2014

“How can the Suns and Earths Gravities Provide a Lagrangian Point on the Side of the Earth Opposite the Sun?” January 2014

“How Big are the Lagrangian Points?” December 2013

“How Can Six Trojan Astroids Reside in Neptuness L4 Region Without Colliding?” May 2013

“If the Sun were to Suddenly Disappear, How Long Would it Take to Feel the Absence of the Sun’s Gravity?” July, 2012

“How Massive Must a Colliding Body Be to Disturb Earth’s Orbit?” February, 2013

“How can Six Trojans Reside in Neptune’s L4 Region Without Bumping into Each Other?” May, 2013

### Selected Press Coverage

Quoted in White House Blog, “Citizen Science Contributes to Advances in Scientific Understanding” by Jenn Gustetic and Lea Shanley, 1/14/15

Quoted in Sky & Telescope “Citizen Scientists Explore Exoplanet Origins” by Monica Young, 1/30/15

NASA HQ Press Release and YouTube Video, Volunteer ‘Disk Detectives’ Top 1 Million Classifications of Possible Planetary Systems, 1/6/15

artwork used in Universe Today, “Could a Planet Be As Big As a Star?” 10/16/14

NASA HQ Press Release and YouTube Video, NASA-Sponsored ‘Disk Detective’ Lets Public Search for New Planetary Nurseries, 1/30/14

Quoted in ScienceNews “Gas, not planets, may be source of rings around stars by Jessica Shugart, 8/1/13

Goddard/JPL web feature and YouTube video “NASA Study Shows Disks Don’t Need Planets to Make Patterns 7/12/13

Quoted in Nature: NatureJobs Feature “Networking: Real connections 7/10/2013

NPR Interview All Things Considered about the planet discovered around Alpha Centauri B 10/17/12

Quoted in Scientific American in an article entitled, “Diamond Planets” 1/13

Quoted in Mays NewScientist in an article entitled, “Diamond planets get even more precious 5/2/13

Quoted in Science on NBC News in an article entitled, “Dead stars may play host to living worlds, 2/27/12

Q&A with Marc Kuchner in Physics Today on 10/10/12

Quoted in New Scientist Dust rings not ‘smoking gun’ for planets after all, 5/14/12

Interview, Nature Materials, 3/22/12

Astronomy Magazine article, An important book: Marc Kuchners ”Marketing for Scientists”, 3/8/12

artwork used in Astrobiology Magazine, “Defining the Structure of Exoplanets” 2/5/12

Maryland Public Television interview, “Direct Connection” 12/12/11

NPR interview, “Found: Earth-Like Planet That Might Be Right For Life” 10/19/11

NASA Press Release, "Media Invited to 'Signposts of Planets' Meeting at NASA Goddard" 10/11/11

NASA Press Release, "Spiral Arms Point to Possible Planets in a Star's Dusty Disk" 12/12/11

New Scientist, "Diamond planets may not be life's best friend" 12/6/11

Sky and Telescope Blog, "A Planet Made of Diamond" 8/25/11

National Geographic, "Should Pluto Be a Planet? New Finds Drive Debate" 8/24/11

NPR interview, "Sci-Fi To Fact: Planet Hunters Find Worlds Like Earth" 2/1/11

Astronomy Magazine, "Spitzer Space Telescope reveals first carbon-rich planet" 12/9/10

Science News, "Planet in the sky with diamonds" 12/8/10

National Geographic Daily News, "Space Photos This Week: Moon Mash-up, Saturn Aurora, More" 9/30/10

Discovery News, "Could ET Spot Our Solar System" 9/28/10

The Huffington Post, "NASA Dust Model Presents Alien's View Of Our Solar System" 9/28/10

Physics Central, "Podcast: Colliding Planets Part One" 9/28/10

YouTube, "Alien's View Of Our Solar System," 130,000 views, 9/23/10

Science News, "Between the Sheets: The detection of layered minerals in a young stars planet-forming region suggests an origin for Earths oceans." 9/25/10

Discovery News, "Parent Stars Can Smother Planets" 8/25/10

Astronomy Magazine, "Pulverized planet dust may lie around double stars" 8/24/10

Astronomy Magazine, "Can Extrasolar Planets be Detected With Radio Telescopes..." 4/26/10

Astronomy Magazine, "Is It True That There Are more Stars in the Universe..." 12/28/09

Scientific American Blogs, "Earth-Like Planets May Be Made of Carbon" 12/17/09

NPR Interview, "Newly Discovered Planet Cloud Be a Watery World" 12/16/09

Astronomy Magazine, "Why Hasn't The Asteroid Belt Formed a Planet" 11/22/09

Astronomy Magazine, "Subaru Telescope spots tiny companion to Sun-like star" 12/4/09

AstronomyNow.com, "Twin Keck telescopes probe dual dust disks" 9/25/09

National Geographic Daily News, "SPACE PHOTOS THIS WEEK: Mount Wilson Fire, Nebula, More" 8/28/09

Astronomy Magazine, "Warped debris disks around stars are blowing in the wind" 8/28/09

artwork used in Astrobiology Magazine, "Kepler Ready To Search For Earths" 2/24/09

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Astrobiology Magazine, "A Very Hot Earth" 2/4/09

Astronomy Magazine Blog, "Fomalhaut exoplanet discovery Q&A with NASA scientist" 11/13/08

National Geographic, "First Pictures of Alien Planet System Revealed" 11/13/08



Astrobiology.com, "Hubble Announces A Major Extrasolar Planet Discovery" 11/7/08

Astronomy Magazine, "NASA supercomputer shows how dust rings point to exo-Earths" 10/08

USA Today, "Earth-like planet in Epsilon Eridani? It is logical, Captain" 10/27/08

Astrobiology Magazine, "Patterns in the Dust" 10/14/08

Universe Today, "Dust Could Point Out Earth-like Exoplanets" 10/10/08

New Scientist, "Telescope could focus light without a mirror or lens" 5/18/08

New Scientist, "Moons like Earth's are few and far between" 11/15/07

Astrobiology Magazine, "All Planets Possible" 9/30/07

New Scientist, "'Sci-fi' model worlds aid planet classification" 9/24/07

Baltimore Sun, "Newfound Planet Could Foster Life, Astronomers Say" 4/5/07

Science News, "On the Trail of Dead Planets: Dust ring around a white dwarf" 2/17/07

Sky and Telescope Magazine, "New Concept For Imaging Life-bearing Planets" 10/2006

Nature, cover art, 7/06

Astrobiology Magazine, "Seeing Planets Despite the Stars" 7/8/06

SpaceRef, "Space shield could help image Earth-like planets, says study" 7/6/06

Universe Today, "Sky Shade Could Reveal Planets" 7/5/06

Sky and Telescope Magazine, "The Birth of Carbon Planets?" 6/8/06

USA Today, "Star's planets might have mountains of diamonds" 6/8/06

New Scientist, "Star's dusty disc could create exotic worlds" 6/7/06

National Geographic, "Nearby Star System Could Spawn Carbon-Rich Planets" 6/7/06

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profile in Baltimore Sun, "Astronomer Hopes To Spot an Inviting Planet or Two" 3/19/06

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Sky and Telescope Magazine, "Peering Into Planetary Graveyards" 2/10/06

Sydney Morning Herald, "Dust to Dust: What Survives the Death of a Solar System" 1/13/06

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Scientific American, Quote of the Day, 1/11/06

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Iran Daily, "Distant Planets Could be Made of Diamond" 4/17/05

NPR Interview, Morning Edition, "The Race To Capture Extrasolar Planets" 3/05

Astronomy Magazine, "Microplanets and Mini-Systems" 2/16/05

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IMAX Tycho Brahe Planetarium, "Exoplanetar med kul pa" 2/11/05

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www.spacedaily.com "In the Stars: Odd Stars, Odder Planets" 2/10/05

Wired News, "Star Wants Out of Milky Way" 2/9/05

Astrobiology Magazine, "Carbon World" 2/8/ 05

News@Nature.com, "Distant Planets Could Be Made of Diamond" 2/05

Space.com, "Diamond Planets: Rich Possibilities for Other Worlds" 2/8/05

National Geographic News, "Diamond Planets Hint at Dazzling Promise of Other Worlds"  
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comment in Science Now, "Coming Soon: A New Solar System" 8/12/04

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4/23/05

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Sky and Telescope Magazine, "Finding Waterworld" 9/03

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the TPF" 2003-

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