Steven J. Desch

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Positions:

Professor	Arizona State University	2015–Present
Associate Professor	Arizona State University	2009–2015
Assistant Professor	Arizona State University	2003–2009
NASA Astrobiology Fellow / Carnegie Fellow	Carnegie Institution of Washington Department of Terrestrial Magnetism	2000–2003
National Research Council Postdoctoral Fellow	NASA Ames Research Center	1998–2000

Education:

Ph.D. (Physics)	University of Illinois, Urbana-Champaign	–	1998
M. S. (Astrophysics)	University of Chicago	–	1992
M. S. (Physics)	Rensselaer Polytechnic Institute, Troy, NY	–	1991
B. S. (Physics)	Rensselaer Polytechnic Institute, Troy, NY	–	1990

Notable Achievements:

2017	Lead Organizer, Astrobiology Science Conference 2017
2016	Deputy PI, $1.5M "Water from the Heavens" grant from Keck Foundation
2015	Advisor for Chuhong Mai, Recipient NASA Earth and Space Science Fellowship (NESSF graduate fellowship)
2014	PI, $6.1M "Exoplanetary Ecosystems" grant from NASA Nexus for Exoplanet System Science
2014	Advisor for Marc Neveu, Recipient NASA Earth and Space Science Fellowship (NESSF graduate fellowship)
2013	Organized "Stellar Stoichiometry" NASA Astrobiology Institute Workshop Without Walls at ASU, April 11-12, 2013
2012	Honors Faculty, Barrett Honors College, ASU
2010	Visiting Faculty, University of Hawaii, Manoa
2007	Advisor for Nicolas Ouellette, Recipient of Nininger Meteorite Award (nationally competed award of the ASU Center for Meteorite Studies).
2003	Alfred O. Nier Prize of the Meteoritical Society, for outstanding contributions to meteoritics or closely allied fields by a researcher under 35.
2000	Carnegie Postdoctoral Fellowship
1997	National Research Council Postdoctoral Fellowship
1991	National Science Foundation Graduate Fellowship

Graduate Student Advising:

I have supervised 11 graduate students to 8 Ph.D. degrees and 4 M.S. degrees. Of the 8 Ph.D. students, five are researchers (at Southwest Research Institute, the Planetary Science Institute, Arizona State University, and the US Naval Observatory); one is a leading forensic scientist at the Phoenix Police Department; and one is tenured faculty at SUNY Cortland. I am currently advising five graduate students.

Graduate Student Degrees:

Dec 2015	Ph.D.	Marc Neveu	*Hydrothermal Habitats: Characterization of Bulk Microbial Chemistry, and Influence on the Evolution of Dwarf Planets*
May 2015	M.S.	Luke Probst	*Modeling the Interior of Haumea*
Aug 2014	M.S.	Nikhil Monga	Masters in passing
Dec 2013	Ph.D.	Simon Porter	*Trans-Neptunian and Exosolar Satellites and Dust: Dynamics and Surface Effects*
May 2013	M.S.	Mark Rubin	*Effect of Rayleigh-Taylor Instabilities on the Thickness of Undifferentiated Crust on Kuiper Belt Objects like Charon*
May 2012	Ph.D.	Michael Lesniak	*Modeling Layered Accretion and the Magnetorotational Instability in Protoplanetary Disks*
May 2010	Ph.D.	Allison Loll	*On the Northwest-Southeast Asymmetry in the Crab Supernova Remnant*
Jun 2009	Ph.D.	Melissa Morris	*Thermal Histories of Chondrules in solar Nebula Shocks, Including the Effects of Molecular Line Cooling*
Dec 2008	Ph.D.	Miriam Riner	*Compositional Variations in the Inner Solar System from Interior Modeling and Spectroscopy of Mercury, the Moon, and Asteroids*
Aug 2008	Ph.D.	Nic Ouellette	*Modeling the Injection of Short-Lived Radionuclides from a Nearby Supernova into the Solar System's Protoplanetary Disk*
Aug 2007	Ph.D.	Jason Cook	*Dissecting Intermediate-Sized Kuiper Belt Objects*
Dec 2006	M.S.	Melissa Morris	*Phyllosilicate Emission from Protoplanetary Disks*

Graduate Student Principal Advisor:

Anusha Kalyaan	Ph.D. expected 2018
Chuhong Mai	Ph.D. expected 2021
Wanda Feng	Ph.D. expected 2021
AlejandroLorenzo	M.S. expected 2018
Alexandra Perez	M.S. expected 2018

Courses Taught:

Sp 2017	AST-421	Astrophysics I
Fa 2016	AST-521	Stars and Interstellar Medium I
Sp 2016	SES-124	Intro. Earth & Space Exploration Lab
Sp 2016	SES-122	Intro. Earth & Space Exploration
Fa 2015	SES-121	Intro. Earth & Space Exploration
Fa 2015	AST-498	(Undergraduate) Astrophysics Seminar
Fa 2015	AST-591	(Graduate) Astrophysics Seminar
Sp 2015	SES-122	Intro. Earth & Space Exploration
Sp 2015	SES-124	Intro. Earth & Space Exploration Lab
Sp 2015	AST-498	(Undergraduate) Astrophysics Seminar
Sp 2015	AST-591	(Graduate) Astrophysics Seminar
Fa 2014	AST-521	Stars and Interstellar Medium I
Sp 2014	SES-122	Intro. Earth & Space Exploration
Sp 2014	SES-124	Intro. Earth & Space Exploration Lab
Sp 2014	AST-498	(Undergraduate) Astrophysics Seminar
Sp 2014	AST-591	(Graduate) Astrophysics Seminar
Fa 2013	SES-121	Intro. Earth & Space Exploration
Fa 2013	SES-123	Intro. Earth & Space Exploration Lab
Sp 2013	SES-122	Intro. Earth & Space Exploration
Sp 2013	SES-124	Intro. Earth & Space Exploration Lab
Sp 2013	AST-591	(Graduate) Seminar: Geodesigning the Arctic
Sp 2013	AST-494	(Undergraduate) Seminar: Geodesigning the Arctic
Fa 2012	AST-521	Stars and Interstellar Medium I
Fa 2012	AST-591	(Graduate) Astrophysics Seminar
Fa 2012	AST-494	(Undergraduate) Astrophysics Seminar
Sp 2012	SES-102	Intro. Earth & Space Exploration
Sp 2012	SES-104	Intro. Earth & Space Exploration Lab
Sp 2012	AST-591	(Graduate) Astrophysics Seminar
Sp 2012	AST-494	(Undergraduate) Astrophysics Seminar
Fa 2011	SES-101	Intro. Earth & Space Exploration
Fa 2011	SES-103	Intro. Earth & Space Exploration Lab
Fa 2011	AST-591	History of the Solar System: Planetary Fluids
Sp 2011	SES-102	Intro. Earth & Space Exploration
Sp 2011	SES-104	Intro. Earth & Space Exploration Lab
Sp 2011	AST-591	(Graduate) Astrophysics Seminar
Sp 2011	AST-494	(Undergraduate) Astrophysics Seminar
Sp 2010	SES-102	Intro. Earth & Space Exploration
Sp 2010	SES-104	Intro. Earth & Space Exploration Lab
Fa 2009	SES-101	Intro. Earth & Space Exploration
Fa 2009	SES-103	Intro. Earth & Space Exploration Lab
Sp 2009	AST-112	Intro. Stars, Galaxies & Cosmology
Fa 2008	AST-421	Astrophysics I

Courses Taught:

Sp 2008	AST-521	Stars and Interstellar Medium I
Sp 2008	AST-421	Astrophysics I
Fa 2007	AST-523	Stars and Interstellar Medium III
Sm 2007	AST-112	Intro. Stars, Galaxies & Cosmology
Sm 2007	AST-114	Astronomy Lab II
Fa 2006	AST-421	Astrophysics I
Sp 2006	AST-521	Stars and Interstellar Medium I
Fa 2005	AST-321	Intro. Planetary & Stellar Astrophysics
Sm 2005	AST-112	Intro. Stars, Galaxies & Cosmology
Sm 2005	AST-114	Astronomy Lab II
Sp 2005	AST-422	Astrophysics II
Fa 2004	AST-421	Astrophysics I
Sp 2004	AST-521	Stars and Interstellar Medium I
Sp 2004	AST-591	(Graduate) Astrophysics Seminar
Sp 2004	AST-494	(Undergraduate) Astrophysics Seminar

Undergraduate Mentoring:

I have mentored undergraduates through a variety of projects. In the NASA Reduced Gravity Student Flight Opportunities program, teams of undergraduates compete to fly an experiment of their own design and construction on NASA's aircraft simulating microgravity; I have mentored two successful teams, who studied dust electrification. I also led a team of undergraduates to propose a student-led experiment that would have become part of the OSIRIS-REx mission. I have also advised Barrett Honors College students working on Honors Contracts, and many other projects.

Fa 2016	Kanishka Nirmale	*Analysis of Astrophysics Degree Requirements at Peer Institutions*
Fa 2016	Jenna Robinson	*Exoplanetary Ecosystems Planetary Posse* NASA NExSS Grant
Fa 2016	Cierra Huff	*Exoplanetary Ecosystems Planetary Posse* NASA NExSS Grant
Fa 2016	Jacob Woolsey	*Exoplanetary Ecosystems Planetary Posse* NASA NExSS Grant
Sp 2016	Kevin Conklin	*Exoplanetary Ecosystems Planetary Posse* NASA NExSS Grant
Sp 2016	Kali Johnson	*Exoplanetary Ecosystems Planetary Posse* NASA NExSS Grant
Sp 2016	Jenna Robinson	*Exoplanetary Ecosystems Planetary Posse* NASA NExSS Grant
Sp 2016	Jenna Robinson	*Exoplanets and ExoPlex: How to use code to determine exoplanet characteristics* Barrett Honors Contract
Sp 2016	Connor Companik	*Astrometric Wobble of the Sun* Barrett Honors Contract
Fa 2015	Alejandro Lorenzo	*Java Code for Studying the Protolunar Disk*
Fa 2015	Alex Mastrean	*Self-Compression of Ceres-Like Bodies Composed of Hydrated Silicates* Barrett Honors College Senior Thesis
Fa 2015	Kali Johnson	*Exoplanetary Ecosystems Planetary Posse* NASA NExSS Grant
Fa 2015	Kevin Conklin	*Exoplanetary Ecosystems Planetary Posse* NASA NExSS Grant, NSAA Space Grant
Fa 2015	Isaac Meisenheimer	*Exoplanetary Ecosystems Planetary Posse* NASA NExSS Grant, NSAA Space Grant
Fa 2015	Victoria Jones	*Comparison of Copernicus's and Kepler's Models for Earth's and Mars's Orbits* Barrett Honors Contract

Sp 2015	Alejandro Lorenzo	*Java Code for Studying the Protolunar Disk* NASA Space Grant
Sp 2015	Perry Vargas	*Geodesigning the Arctic* Barrett Honors Contract
Fa 2014	Alejandro Lorenzo	*Java Code for Studying the Protolunar Disk* NASA Space Grant
Fa 2014	Dillon Nys	*Java Code for Calculating Exoplanet Mass-Radius Relationships*
Sp 2014	Jack Lightholder	*NASA Reduced Gravity Student Flight Opportunities*
Sp 2014	Elizabeth Dyer	*NASA Reduced Gravity Student Flight Opportunities*
Sp 2014	Robert Amzler	*NASA Reduced Gravity Student Flight Opportunities*
Sp 2014	Alison Gibson	*NASA Reduced Gravity Student Flight Opportunities*
Sp 2014	Zachary Priddy	*NASA Reduced Gravity Student Flight Opportunities*
Sp 2014	Alejandro Lorenzo	*Java Code for Calculating Exoplanet Mass-Radius Relationships* NASA Space Grant
Sp 2014	Amanda Wilber	*Java Code for Studying the Protolunar Disk* Senior Thesis
Fa 2013	Alejandro Lorenzo	*Java Code for Calculating Exoplanet Mass-Radius Relationships* NASA Space Grant
Fa 2013	Amanda Wilber	*Java Code for Studying the Protolunar Disk* Senior Thesis
Fa 2012	Jacob Ward	*Geoengineering: Where do we go from here?* Barrett Honors Contract
Sp 2012	Jacob Higgins	*NASA Reduced Gravity Student Flight Opportunities*
Sp 2012	Danielle Hoots	*NASA Reduced Gravity Student Flight Opportunities*
Sp 2012	Amy Kaczmarowski	*NASA Reduced Gravity Student Flight Opportunities*
Sp 2012	Emily McBryan	*NASA Reduced Gravity Student Flight Opportunities*
Sp 2012	Pye Pye Zaw	*NASA Reduced Gravity Student Flight Opportunities*
Su 2010	Jason Lowman	*OSIRIS-REx Student Collaboration Experiment Concept Proposal*
Su 2010	Lauren Puglisi	*OSIRIS-REx Student Collaboration Experiment Concept Proposal*
Su 2010	Robert Stevens	*OSIRIS-REx Student Collaboration Experiment Concept Proposal*
Su 2006	Bruce Nourish	*Protostar Dynamics in the Orion Nebula Cluster*
Su 2005	Carola Ellinger	*Yields of Radionuclides Injected by Clumpy Supernovae into Protoplanetary Disks*
Su 2002	Leah Hutchison	*Astromineralogy of the TW Hydrae Disk* (NSF REU Program, Carnegie Inst. of Washington)
Su 2001	Danielle Moser	*Testing a Prediction of the Shock Wave Model of Chondrule Formation* (NSF REU Program, Carnegie Inst. of Washington)

Grants:

In my fourteen-year career at ASU, I have been part of 14 successful grants, including 9 as PI. On the large NASA Astrobiology grant (PI Ariel Anbar), I served as Deputy PI for four years. I am Deputy PI on the large Keck Foundation grant as well. The successful grants on which I was PI (or local PI) total $7.9M; or, considering allocations for myself and CoIs, I have brought in about $3.8M.

1. *Water from the Heavens: The Origin of Earth's Hydrogen*, PI Peter Buseck (CoI Desch); Keck Foundation; to Arizona State University, Jan. 1, 2016 - Dec. 31, 2018; $1,500,000.

2. *Interaction of Planetary Proto-atmospheres with Disk Gas*, PI Steve Desch; NASA Earth and Space Science Fellowship (for Chuhong Mai); to Arizona State University, Sept. 1, 2016 - Aug. 31, 2019; $\approx \$89,000$.

3. *Constraining the Origin of the Jupiter Trojans by In Situ Measurement of Volatiles, Minerals and Ices*, PIs John Eiler (California Institute of Technology) and Jordana Blacksburg (Jet Propulsion Laboratory); Jan. 1, 2014 - Dec. 31, 2015; subaward to CoI Steve Desch, Arizona State University, $\approx$ $38,460.

4. *Icy Worlds: Astrobiology at the Water-Rock Interface and Beyond...*, PI Isik Kanik; NASA Astrobiology Institute; to Jet Propulsion Laboratory, Jan. 2015 - Dec. 31, 2019; subaward to CoI Steve Desch, Arizona State University, $37,123.

5. *Exoplanetary Ecosystems: Exploring life's detectability on chemically diverse exoplanets*, PI Steve Desch; NASA Astrobiology Institute; to Arizona State University, Jan. 1, 2015 - Dec. 31, 2019; $6,097,437.

6. *Coupling Geophysics and Geochemistry in Dwarf Planet Evolution Models*, PI Steve Desch; NASA Earth and Space Science Fellowship (for Marc Neveu); to Arizona State University, Sept. 1, 2014 - Aug. 31, 2015; $\approx \$60,000$.

7. *Coupling Geophysics and Geochemistry in Ceres and Kuiper Belt Objects*, PI Steve Desch; NASA Outer Planets Research; to Arizona State University, Sept. 1, 2014 - Aug. 31, 2017; $236,306.

8. *Chondrule Formation in Solar Nebula Shocks*, PI Steve Desch; NASA Origins of Solar Systems; to Arizona State University, Jan. 1, 2010 - Dec. 31, 2012; $416,841.

9. *Supernova injection of short-lived radionuclides into forming solar systems*, PI Steve Desch; National Science Foundation; to Arizona State University, July 1, 2009 - June 30, 2012; $497,299.

10. *Follow the Elements*, PI Ariel Anbar (CoI Desch); NASA Astrobiology Institute; to Arizona State University, Jan. 1, 2009 - Dec. 31, 2013; $7,517,436.

11. *The Star Formation Observatory (SFO) Mission to Study Cosmic Origins Near and Far*, PI Paul Scowen (CoI Desch); NASA; to Arizona State University, Mar. 28, 2008 - Mar. 27, 2010; $155,865.

12. *Transient Heating of Protoplanetary Disk Material by Shocks*, PI Steve Desch; NASA Origins of Solar Systems; to Arizona State University, Jan. 1, 2006 - Dec. 31, 2008; $195,000.

13. *Transport and Charging of Dust in Terrestrial and Martian Dust Devils: Does Mars have Lightning?*, PI Steve Desch; NASA Mars Fundamental Research Program; to Arizona State University, Jan. 1, 2006 - Dec. 31, 2008; $188,718.

14. *Dust Transport and Charging in Martian and Terrestrial Dust Devils*, PI Steve Desch, Co-PI G. R. Wilson; Jet Propulsion Laboratory Director's Research and Development Fund Award #1277588; to Arizona State University, Sept. 13, 2005 - Sept. 30, 2006; $74,900 ($50,300 to ASU)

Research and Creative Activities:

I have 64 refereed publications, including 19 as lead author and 31 as second author. I have coauthored 30 papers with students; in 24 cases the student was first author. According to the Astrophysics Data System, my h-index is 27.

In addition, I have published 139 conference abstracts. I have given 45 oral presentations at conferences: 42 contributed talks, and 13 invited talks. I have also given 54 colloquium or seminar talks and 26 public talks. I have presented my research on television 4 times.

Refereed Publications

1. *Differentiation and Cryovolcanism on Charon: A View Before and After New Horizons*, S. J. Desch & M. Neveu, *Icarus*, in press (2017). — **Lead author**.

2. *Arctic Ice Management*, S. J. Desch, N. Smith, C. Groppi, P. Vargas, R. Jackson, A. Kalyaan, P. Nguyen, L. Probst, M. E. Rubin, H. Singleton, A. Spacek, A. Truitt, P. Zaw, H. E. Hartnett, *Earth's Future* DOI: 10.1002/2016EF000410 (2017). — **Lead author**

3. *A Comparison of Stellar Elemental Abundance Techniques and Measurements*, N. R. Hinkel, P. A. Young, M. D. Pagano, S. J. Desch, A. D. Anbar, V. Adibekyan, S. Blanco-Cuaresma, J. K. Carlberg, E. Delgado Mena, F. Liu, T. Nordlander, S. G. Sousa, A. Korn, P. Gruyters, U. Heiter, P. Jofre, N. C. Santos, & C. Soubiran, *Astrophysical J. Suppl.* 226, 4 (2016) **-5%**.

4. *The effect of multiple particle sizes on cooling rates of chondrules produced in large-scale shocks in the solar nebula*, M. Morris, S. J. Weidenschilling, & S. J. Desch, *Meteoritics & Plan. Sci.* 51, 870 (2016) – **30%**.

5. *Magetorotational Instability in the Protolunar Disk*, A. Carballido, S. J. Desch & G. J. Taylor, *Icarus*, 268, 89 (2016) — **2nd author**.

6. *Geochemistry, thermal evolution, and cryovolcanism on Ceres with a muddy ice mantle*, M. Neveu & S. J. Desch, *Geophysical Research Letters*, doi: 10.1002/2015GL066375 (2015) — **2nd author**.

7. *External Photoevaporation of the Solar Nebula. II. Effects on Disk Structure and Evolution wth Non-uniform Turbulent Viscosity due to the Magnetorotational Instability*, A. Kalyaan, S. J. Desch & N. Monga, *The Astrophysical Journal*, 815, 112 (2015) — **2nd author**.

8. *High-Temperature Ionization in Protoplanetary Disks*, S. J. Desch & N. J. Turner, *The Astrophysical Journal*, 811, 156 (2015) — **Lead author**.

9. *Core Cracking and Hydrothermal Circulation Can Profoundly Affect Ceres' Geophysical Evolution*, M. Neveu, S. J. Desch & J. C. Castillo-Rogez, *J. Geophysical Research*, 120, 123 (2015) — **2nd author**.

10. *Prerequisites for Explosive Cryovolcanism on Dwarf Planet-Class Kuiper Belt Objects*, M. Neveu, S. J. Desch, E. L. Shock & C. R. Glein, *Icarus*, 246, 48 (2015) — **2nd author**.

11. *Density of Charon formed from a Disk Generated by the Impact of Partially Differentiated Bodies*, S. J. Desch, *Icarus*, 246, 37 (2015) — **Lead author**.

12. *External Photoevaporation of the Solar Nebula: Jupiter's Noble Gas Enrichments*, N. Monga & S. J. Desch, *The Astrophysical Journal* 798, 9 (2015) — **2nd author**.

13. *Nebular Paleomagnetism*, R. R. Fu, B. P. Weiss, E. A. Lima, R. J. Harrison, X.-N. Bai, S. J. Desch, D. S. Ebel, C. Suavet, H. Wang, D. Glenn, D. Le Sage, T. Kasama, R. L. Walsworth & A. T. Kuan, *Science* 346, 1089-1092 (2014) — **10%**

14. *Carbon atom in intense magnetic fields*, A. Thirumalai, S. J. Desch, and P. A. Young, *Physical Review A* 90, 052501 (2014) — **2nd author**.

15. *The Effect of Rayleigh-Taylor Instabilities on the Thickness of Undifferentiated Crust on Kuiper Belt Objects*, M. E. Rubin, S. J. Desch & M. Neveu, *Icarus* 236, 122 (2014) — **2nd author**.

16. *Astrobiological Stoichiometry*, P. A. Young, S. J. Desch, A. D. Anbar, R. Barnes, N. R. Hinkel, R. Kopparapu, N. Madhusudhan, N. Monga, M. D. Pagano, M. A. Riner, E. Scannapieco, S.-H. Shim & A. Truitt, *Astrobiology*, 14, 603 (2014) — **2nd author**.

17. *Evidence for Extinct 135Cs from Ba isotopes in Allende CAIs?*, K. R. Bermingham, K. Mezger, S. J. Desch, E. E. Sherer & M. Horstmann, *Geochimica Cosmochimica Acta* 133, 463 (2014) — **20%**.

18. *Report on a NASA Astrobiology Institute-Funded Workshop Without Walls: Stellar Stoichiometry*, S. J. Desch, P. A. Young, A. D. Anbar, N. Hinkel, M. Pagano, A. Truitt & M. Turnbull, *Astrobiology* 14, 271 (2014) — **Lead author**.

19. *Short GRB 130603B: Discovery of a Jet Break in the Optical and Radio Afterglows, and a Mysterious Late-time X-ray Excess*, W. Fong and 15 co-authors, *The Astrophysical Journal* 780, 118 (2014) — **5%**.

20. *High-temperature Processing of Solids through Solar Nebula Bow Shocks: 3D Radiation Hydrodynamics Simulations with Particles*, A. C. Boley, M. A. Morris & S. J. Desch, *The Astrophysical Journal* 776, 101 (2013) —**35%**.

21. *Observations of the Crab Nebula's Asymmetric Development*, A. M. Loll, S. J. Desch, P. A. Scowen & J. P. Foy, *The Astrophysical Journal.*, 765, 152 (2013) — **2nd author**.

22. *Mixing of Clumpy Supernova Ejecta into Nearby Molecular Clouds*, L. Pan, S. J. Desch, E. Scannapieco & F. X. Timmes, *The Astrophysical Journal*, 756, 102 (2012) — **2nd author**.

23. *Chondrule Formation in Bow Shocks around Eccentric Planetary Embryos*, M. A. Morris, A. C. Boley, S. J. Desch & T. Athanassiadou, *The Astrophysical Journal*, 752, 27 (2012) — **30%**.

24. *The Importance of Experiments: Constraints on Chondrule Formation*, S. J. Desch, M. A. Morris, H. C. Connolly, Jr., & A. P. Boss, *Meteoritics & Planetary Science*, 47, 1139 (2012) — **Lead author**.

25. *Temperature Structure of Protoplanetary Disks Undergoing Layered Accretion*, M. V. Lesniak & S. J. Desch, *The Astrophysical Journal*, 740, 118 (2011) — **2nd author**.

26. *Collateral effects on solar nebula oxygen isotopes due to injection of* ^{26}Al *by a nearby supernova*, C. A. Ellinger, P. A. Young & S. J. Desch, *The Astrophysical Journal*, 725, 1495 (2010) — **35%**.

27. *A critical examination of the X-wind model of chondrule and CAI formation and radionuclide production*, S. J. Desch, M. A. Morris, H. C. Connolly, Jr., & A. P. Boss, *The Astrophysical Journal*, 725, 692 (2010) — **Lead author**.

28. *Thermal histories of chondrules in solar nebula shocks*, M. A. Morris & S. J. Desch, *The Astrophysical Journal*, 722, 1474 (2010) — **2nd author**.

29. *Micrometeorite impact annealing of ice in the outer solar system*, S. B. Porter, S. J. Desch & J. C. Cook, *Icarus* 208, 492 (2010) — **2nd author**.

30. *Injection of supernova dust into nearby protoplanetary disks*, N. Ouellette, S. J. Desch & J. J. Hester, *The Astrophysical Journal*, 711, 597 (2010) — **2nd author**.

31. *Phyllosilicate Emission from Protoplanetary Disks: Is the Indirect Detection of Extrasolar Water Possible?*, M. A. Morris & S. J. Desch, *Astrobiology*, 9, 965 (2009) — **2nd author**.

32. *The absence of endogenic methane on Titan and its implications for the origin of atmospheric nitrogen*, C. R. Glein, S. J. Desch & E. L. Shock, *Icarus*, 204, 637 (2009) — **2nd author**.

33. *Timescales for the evolution of oxygen isotopic compositions in the solar nebula*, J. R. Lyons, E. A. Bergin, F. J. Ciesla, A. M. Davis, S. J. Desch, and J. E. Lee, *Geochimica Cosmochimica Acta*, 73, 4998 (2009) — **15%**.

34. *Injection mechanisms of short-lived radionuclides and their homogenization*, N. Ouellette, S. J. Desch, M. Bizarro, A. P. Boss, F. J. Ciesla & B. Meyer, *Geochimica Cosmochimica Acta*, 73, 4946 (2009) — **2nd author**.

35. *Thermal evolution of Kuiper belt objects, with implications for cryovolcanism*, S. J. Desch, J. C. Cook, T. C. Doggett, and S. B. Porter, *Icarus*, 202, 694 (2009) — **Lead author**.

36. *Spitzer observations of the H II region NGC 2467: An analysis of triggered star formation*, K. D. Snider, J. J. Hester, S. J. Desch, K. R. Healy and J. Bally, *The Astrophysical Journal*, 700, 506 (2009) — **25%**.

37. *Nature of opaque components on Mercury: Insights into a mercurian magma ocean*, M. A. Riner, P. G. Lucey, S. J. Desch & F. M. McCubbin, *Geophysical Research Letters*, 36, 02201 (2009) — **20%**.

38. *The effect of H_2O line cooling in chondrule-forming shocks*, M. A. Morris, S. J. Desch & F. J. Ciesla, *The Astrophysical Journal*, 691, 320 (2009) — **2nd author**.

39. *Global survey of color units on 433 Eros: Implications for regolith processes and asteroid environments*, M. A. Riner, M. S. Robinson, J. M. Eckart & S. J. Desch, *Icarus*, 198, 67 (2008) — **15%**.

40. *The Internal Structure of Mercury—The Implications of a Molten Core*, M. A. Riner, M. S. Robinson, C. R. Bina & S. J. Desch, *Journal of Geophysical Research*, 113, E08013, doi:10.1029/2007JE002993 (2008) — **25%**.

41. *Non-equilibrium between Gas and Dust Temperatures in the Mars Atmosphere*, N. Goldenson, S. Desch & P. Christensen, *Geophysical Research Letters*, 35, L08813, doi:10.1029/2007GL032907 (2008) — **2nd author**.

42. *Mass Distribution and Planet Formation in the Solar Nebula*, S. J. Desch, *The Astrophysical Journal*, 671, 878 (2007) — **Lead author**.

43. *Near-Infrared Spectroscopy of Charon: Possible Evidence for Cryovolcanism on Kuiper Belt Objects* J. C. Cook, S. J. Desch, T. L. Roush, C. A. Trujillo & T. R. Geballe, *The Astrophysical Journal*, 663, 1406 (2007) — **2nd author**.

44. *Interaction of Supernova Ejecta with Nearby Protoplanetary Disks* N. Ouellette, S. J. Desch & J. J. Hester, *The Astrophysical Journal*, 662, 1268 (2007) — **2nd author**.

45. *Comet Grains and Implications for Heating and Radial Mixing in the Protoplanetary Disk* (**invited review**) D. Wooden, S. J. Desch, D. Harker, H.-P. Gail & L. Keller, in *Protostars and Planets V*, eds. B. Reipurth, D. Jewiit & K. Keil (University of Arizona: Tucson), pp. 815-833 (2007) — **2nd author**.

46. *From Dust to Planetesimals: Implications for the Solar Protoplanetary Disk from Short-Lived Radionuclides in Meteorites* (**invited review**) M. Wadhwa, Y. Amelin, G. W. Lugmair, B. Meyer, M. Gounelle & S. J. Desch, in *Protostars and Planets V*, eds. B. Reipurth, D. Jewiit & K. Keil (University of Arizona: Tucson), pp. 835-848 (2007) — **15%**.

47. *Comment on "Li and Be isotopic variations in an Allende CAI: Evidence for the in situ decay of short-lived ^{10}Be and for the possible presence of the short-lived nuclide ^{7}Be in the early solar system," by M. Chaussidon, F. Robert and K. D. McKeegan* S. J. Desch and N. Ouellette, *Geochimica Cosmochimica Acta*, 70, 5426 (2006) — **Lead author**.

48. *Transient Heating Events in the Protoplanetary Nebula* (**invited review**) H. C. Connolly, Jr., S. J. Desch, R. D. Ash & R. H. Jones, in *Meteorites and the Early Solar System II*, eds. D. Lauretta & H. Y. McSween, Jr. (University of Arizona: Tucson), 383 (2006) — **2nd author**.

49. *Understanding our Origins: Star Formation in H II Regions* J. J. Hester & S. J. Desch, in *Chondrites and the Protoplanetary Disk*, eds. A. Krot, E. Scott & B. Reipurth, Astronomical Society of the Pacific Conference Series 341, 107 (2005) — **2nd author**.

50. *A Supernova Injected Radionuclides into our Protoplanetary Disk* N. Ouellette, S. J. Desch, J. J. Hester & L. A. Leshin, in *Chondrites and the Protoplanetary Disk*, eds. A. Krot, E. Scott & B. Reipurth, Astronomical Society of the Pacific Conference Series 341, 527 (2005) — **2nd author**.

51. *Heating of Chondritic Materials in Solar Nebula Shocks* (**invited review**) S. J. Desch, F. J. Ciesla, L. L. Hood & T. Nakamoto, in *Chondrites and the Protoplanetary Disk*, eds. A. Krot, E. Scott & B. Reipurth, Astronomical Society of the Pacific Conference Series 341, 849 (2005) — **Lead author**.

52. *Linear Analysis of the Magnetorotational Instability, Including Ambipolar Diffusion, with Application to Protoplanetary Disks* S. J. Desch, *The Astrophysical Journal*, 608, 509 (2004) — **Lead author**.

53. *The Cradle of the Solar System* J. Jeff Hester, Steven J. Desch, Kevin R. Healy & Laurie A. Leshin, *Science* 304, 1116 (2004) — **2nd author**.

54. *On the Origin of the Kleine Kügelchen called Chondrules* (**invited review**) H. C. Connolly, Jr. & S. J. Desch, *Chemie der Erde* 64, 95 (2004) — **2nd author**.

55. *An Interstellar Origin for the Beryllium 10 in Calcium-rich, Aluminum-rich Inclusions* S. J. Desch, H. C. Connolly, Jr., & G. Srinivasan, *The Astrophysical Journal*, 602, 528 (2004) — **Lead author**.

56. *Progress in Planetary Lightning* (**invited review**) S. J. Desch, W. J. Borucki, C. T. Russell & A. Bar-Nun *Reports on Progress in Physics* 65, 955 (2002) — **Lead author**.

57. *Annealing of Silicate Dust by Nebular Shocks at 10 AU*, D. E. Harker & S. J. Desch, *The Astrophysical Journal* 565, L109 (2002) — **2nd author**.

58. *A Model of the Thermal Processing of Particles in Solar Nebula Shocks: Application to the Cooling Rates of Chondrules* S. J. Desch & H. C. Connolly, Jr. *Meteoritics & Planetary Science* 37, 183 (2002) — **Lead author**.

59. *Shock Processing of Interstellar Nitrogen Compounds in the Solar Nebula*, M. E. Kress, S. J. Desch, C. E. Dateo & G. Benedix, *Advances in Space Research* 30, 1473 (2002) — **2nd author**.

60. *The Magnetic Decoupling Stage of Star Formation* S. J. Desch & T. Ch. Mouschovias, *The Astrophysical Journal* 550, 314 (2001) — **Lead author**.

61. *Large-Scale Thermal Events in the Solar Nebula: Evidence from Fe,Ni Metal Grains in Primitive Meteorites* A. Meibom, S. J. Desch, A. N. Krot, J. N. Cuzzi, M. I. Petaev, L. Wilson & K. Keil, *Science* 288, 839 (2000) — **2nd author**.

62. *The Generation of Lightning in the Solar Nebula* S. J. Desch & J. N. Cuzzi, *Icarus* 143, 87 (2000) — **Lead author**.

63. *Radiative Cooling and Viscous Dissipation in Molecular Accretion Disks at the Nuclei of Galaxies* S. J. Desch, B. K. Wallin & W. D. Watson, *The Astrophysical Journal* 496, 775 (1998) — **Lead author**.

64. *Ambipolar Diffusion and Far-Infrared Polarization from the Galactic Center Circumnuclear Disk* S. J. Desch & W. G. Roberge, *The Astrophysical Journal* 475, L115-118 (1997) — **Lead author**.

Other Publications

1. *Planetary science: Cooking up the Moon in two steps*, *Nature Geoscience* 8, 902 (2015).

2. *2015 Leonard Medal Citation for Jeff Cuzzi*, *Meteoritics and Planetary Science* 50, 1489 (2015).

3. *How to Make a Chondrule* Steve Desch, *Nature* 441, 416-417 (2006).

4. *Astromineralogy: Dust in another Solar System* Steve Desch, *Nature* 431, 636 (2004).

Published Conference Abstracts

1. *Effect of External Photoevaporation on the Radial Transport of Volatiles and the Water Snowline in the Solar Nebula*, A. Kalyaan & S. Desch, *229th Meeting of the American Astronomical Society*, 345.17 (2017).

2. *White Dwarf Pollution by Disk Accretion of Tidally Disrupted Rocky Bodies*, W. Feng & S. J. Desch, *229th Meeting of the American Astronomical Society*, 244.04 (2017).

3. *Isotopic mixing by magnetorotational instability in the protolunar disk*, S. J. Desch, A. Carballido & G. J. Taylor, *American Astronomical Society Meeting, Division of Planetary Sciences 48*, 518.06 (2016).

4. *Evolution of the Magnetic Field during Chondrule Formation in Planetary Bow Shocks*, C. Mai, S. Desch & A. C. Boley, *American Astronomical Society Meeting, Division of Planetary Sciences 48*, 318.02 (2016).

5. *Determining the Location of the Water Snowline in an Externally-Photoevaporated Solar Nebula*, A. Kalyaan & S. Desch, *228th Meeting of the American Astronomical Society*, 320.05 (2016).

6. *ExoPlex: A code for calculating interior structure and mineralogy and mass-radius relationships for exoplanets*, *228th Meeting of the American Astronomical Society*, 316.04 (2016).

7. *Disk Accretion of Tidally Disrupted Rocky Bodies onto White Dwarfs*, W. Feng, S. Desch, N. Turner & A. Kalyaan, *228th Meeting of the American Astronomical Society*, 218.07 (2016).

8. *Thermal Modeling of Cyrovolcanic Vents on Charon: Ascent vs. Freezing Timescales*, C. Mount & S. Desch, *Lunar and Planetary Science Conference 47*, 2682 (2016).

9. *Magnetic Fields Behind Chondrule-Forming Planetary Bow Shocks*, C. Mai, S. Desch & A. C.Boley, *Lunar and Planetary Science Conference 47*, 2519 (2016).

10. *Differentiation and Cryovolcanism in the Pluto-Charon System*, S. Desch & M. Neveu, *Lunar and Planetary Science Conference 47*, 1647 (2016).

11. *Geochemistry, Thermal Evolution, and Cryovolcanism on Ceres with a Muddy Ice Mantle*, M. Neveu & S. Desch, *Lunar and Planetary Science Conference 47*, 1384 (2016).

12. *Evaluating Chondrule Formation Models and the Protoplanetary Disk Background Temperature with Low-Temperature, Sub-Silicate Solidus Chondrule Cooling Rates*, D. Schrader, R. R. Fu & S. Desch, *Lunar and Planetary Science Conference 47*, 1180 (2016).

13. *Calculating Internal Structure and Mass-Radius Relationships of Rocky Exoplanets*, S. J. Desch, A. Lorenzo, & B. Ko, *Extreme Solar Systems III Conference*, 115.18 (2015).

14. *Determing the Location of the Snowline in an Externally Photoevaporated Solar Nebula*, A. Kalyaan & S. J. Desch, *American Astronomical Society Division of Planetary Sciences Meeting 47*, 507.07 (2015).

15. *Charon Quandaries*, S. J. Desch & M. Neveu, *American Astronomical Society Division of Planetary Sciences Meeting 47*, 210.28 (2015).

16. *Geophysics and geochemistry intertwined: Modeling the internal evolution of Ceres, Pluto and Charon*, M. Neveu, S. J. Desch & J. C. Castillo-Rogez, *American Astronomical Society Division of Planetary Sciences Meeting 47*, 103.10 (2015).

17. *High-temperature ionization of dusty gases and implications for chondrule formation in current sheets*, S. J. Desch & N. J. Turner, *78th Annual Meeting of the Meteoritical Society*, Lunar and Planetary Institute Contribution 1856, 5377 (2015).

18. *Un-Earth-Like Interiors of Earth-like Exoplanets*, S.-H. Shim, C. Nisr, B. Ko, M. D. Pagano, S. J. Desch & P. A. Young, *Comparative Tectonic and Geodynamics of Venus, Earth, and Rocky Exoplanets*, Lunar and Planetary Institute Contribution 1839, 5020 (2015).

19. *Effect of Fe Redox State and Mg/Si Ratio on Exoplanet Mass-Radius Relations*, A. Lorenzo, S. J. Desch, S.-H. Shim & D. Nys, *Lunar and Planetary Science Conference* 46, 2908 (2015).

20. *Modeling the Aqueous Geochemistry of Ceres and Other Dwarf Planets*, M. Neveu, S. J. Desch & J. C. Castillo-Rogez, *Lunar and Planetary Science Conference* 46, 2526 (2015).

21. *High-Temperature Ionization of Dusty Gases*, S. J. Desch & N. J. Turner, *Lunar and Planetary Science Conference* 46, 2311 (2015).

22. *Simulations of Protoplanetary Disk Evolution Including External Photoevaporation and MRI Viscosity With Dust*, A. Kalyaan & S. J. Desch, *Lunar and Planetary Science Conference* 46, 2206 (2015).

23. *The Internal Structure of Haumea*, L. W. Probst, S. J. Desch & A. Thirumalai, *Lunar and Planetary Science Conference* 46, 2183 (2015).

24. *On the Origin of Haumea*, S. J. Desch & M. Neveu, *Lunar and Planetary Science Conference* 46, 2082 (2015).

25. *Abundances of Elements in Jupiter's Atmosphere*, S. J. Desch & N. Monga, *American Astronomical Society Division of Planetary Sciences Meeting 46*, 512.02 (2014).

26. *Core Cracking and Hydrothermal Circulation Profoundly Affect Ceres' Geophysical Evolution*, M. Neveu, S. J. Desch & J. C. Castillo-Rogez, *American Astronomical Society Division of Planetary Sciences Meeting 46*, 500.08 (2014).

27. *A Brief History of Ceres*, J. C. Castillo-Rogez, M. Neveu, S. J. Desch & T. Prettyman, *American Astronomical Society Division of Planetary Sciences Meeting 46*, 500.05 (2014).

28. *Gravitational Potential of Haumea with a Rocky Core*, L. Probst & S. J. Desch, *Lunar and Planetary Science Conference* 45, 2706 (2014).

29. *A Re-Evaluation of Chondrule Formation in Large-Scale Shocks*, M. A. Morris & S. J. Desch, *Lunar and Planetary Science Conference* 45, 2577 (2014).

30. *Structure and Evolution of Externally Photoevaporated Protoplanetary Disks*, A. Kalyaan, S. J. Desch & N. Monga, *Lunar and Planetary Science Conference* 45, 2202 (2014).

31. *Jupiter's Noble Gas Abundances May Require External UV Irradiation of the Solar Nebula*, S. J. Desch & N. Monga, *Lunar and Planetary Science Conference* 45, 1725 (2014).

32. *On the Lower Radius Limit of Exoplanets*, A. Lorenzo, S. J. Desch & S.-H. Shim, *Lunar and Planetary Science Conference* 45, 1636 (2014).

33. *Nebular Magnetism Recorded in the Semarkona Meteorite*, R. R. Fu, E. A. Lima, B. P. Weiss, R. J. Harrison, D. S. Ebel & S. J. Desch, *Lunar and Planetary Science Conference* 45, 1420 (2014).

34. *Formation of Pluto and Charon from Two Partially Differentiated Impactors*, S. J. Desch, *Lunar and Planetary Science Conference* 45, 1135 (2014).

35. *Modeling Core Cracking, a Key Factor in the Geophysical Evolution and Habitability of Ceres*, M. Neveu, S. J. Desch & J. C. Castillo-Rogez, *Lunar and Planetary Science Conference* 45, 1102 (2014).

36. *The Effect of Rayleigh-Taylor Instabilities on the Thickness of Undifferentiated Crust on Kuiper Belt Objects*, S. J. Desch, M. E. Rubin & M. Neveu, *Workshop on the Habitability of Icy Worlds*, Lunar and Planetary Institute Contribution 1774, 4074 (2014).

37. *Enceladus' Fully Cracked Core: Implications for Habitability*, M. Neveu, C. R. Glein, A. D. Anbar, C. P. McKay, S. J. Desch, J. C. Castillo-Rogez & P. Tsou, *Workshop on the Habitability of Icy Worlds*, Lunar and Planetary Institute Contribution 1774, 4028 (2014).

38. *Charon Cryovolcanism and Plutonian Plutonics*, S. J. Desch & M. Neveu, *American Geophysical Union Fall Meeting*, # P51B1744D (2013).

39. *Warm and Wet? The Role of Liquid Water in the Early Evolution of Ceres*, M. Neveu, S. J. Desch & J. C. Castillo-Rogez, Workshop on Planetesimal Formation and Differentiation, Lunar and Planetary Institute Contribution 1768, 8037 (2013).

40. *Magnetic Fields in Chondrule-Forming Shocks*, S. J.Desch, R. Fu & B. Weiss, *Meteoritics and Planetary Science Abstracts* 76, 5331 (2013).

41. *Mixing of Clumpy Supernova Ejecta into Nearby Molecular Clouds*, S. J. Desch, L. Pan, E. Scannapieco & F. X. Timmes, *Lunar and Planetary Science Conference* 44, 2692 (2013).

42. *Isotopic Mixing due to Interaction between the Protolunar Disk and the Earth's Atmosphere*, S. J. Desch & G. J. Taylor, *Lunar and Planetary Science Conference* 44, 2566 (2013).

43. *Thickness of Undifferentiated Crust on Kuiper Belt Objects Experiencing Rayleigh-Taylor Instabilities*, M. E. Rubin, S. J. Desch & M. Neveu, *Lunar and Planetary Science Conference* 44, 2559 (2013).

44. *High-Temperature Processing of Solids in Planetary Embryo Bow Shocks*, A. C. Boley, M. A. Morris & S. J. Desch, *Lunar and Planetary Science Conference* 44, 2409 (2013).

45. *Cracking in Cere's Core as an Opportunity for Later Hydrothermal Activity*, M. Neveu, S. J. Desch & J. C. Castillo-Rogez, *Lunar and Planetary Science Conference* 44, 2216 (2013).

46. *A Model of the Moon's Volatile Depletions*, S. J. Desch & G. J. Taylor, *European Planetary Science Congress*, 271 (2012).

47. *A Model for Accretion of CH/CB/Isheyevo Chondrites*, M. A. Morris, S. J. Desch & L. A. J. Garvie, *Meteoritics and Planetary Science Abstracts* 75, 5390 (2012).

48. *The Chemical Environment Experienced by Chondrules Formed in Planetary Embryo Bow Shocks*, M. A. Morris, S. J. Desch & A. C. Boley, *Lunar and Planetary Science Conference* 43, 2782 (2012).

49. *Snow Lines in Externally Photoevaporated Protoplanetary Disks*, S. J. Desch, *Lunar and Planetary Science Conference* 43, 2770 (2012).

50. *Formation and Initial Evolution of Rayleigh-Taylor Clumps in the Ejecta of Supernova Simulations*, C. I. Ellinger, P. A. Young, S. J. Desch, C. L. Fryer & G. Rockefeller, *American Astronomical Society Meeting* 219, 203.02 (2012).

51. *Clumpy Supernova Injection into Forming Planetary Systems*, S. J. Decsh, L. Pan & E. Scannapieco, *Workshop on Formation of the First Solids in the Solar System*, Lunar and Planetary Institute Contribution 1639, 9117 (2011).

52. *Chondrule Formation in Eccentric Planetary Embryo Bow Shocks*, M. A. Morris, A. C. Boley, S. J. Desch & T. Athanassiadou, *Workshop on Formation of the First Solids in the Solar System*, Lunar and Planetary Institute Contribution 1639, 9082 (2011).

53. *Revisiting collisional stripping of Mercury's mantle*, M. A. Riner, S. J. Desch & G. J. Taylor, *European Planetary Science Congress - Division of Planetary Sciences Joint Meeting*, 1876 (2011).

54. *Thermal Histories of Chondrules in Very Large Planetesimal Bow Shocks: Did Mars Make Chondrules?* S. J. Desch & M. A. Morris, *Meteoritics and Planetary Science Abstracts* 74, 5414 (2011).

55. *Thermal Histories of Chondrules: An Assessment of the Effect of a Size Distribution of Precursor Particles*, M. A. Morris & S. J. Desch, *Meteoritics and Planetary Science Abstracts* 74, 5202 (2011).

56. *A Model of the Moon's Volatile Depletion*, S. J. Desch & G. J. Taylor, A Wet vs. Dry Moon: Exploring Volatile Reservoirs and Implications for the Evolution of the Moon and Future Exploration, Lunar and Planetary Institute Contribution 1621, 12 (2011).

57. *Evidence for Irradiation of the Sun's Transition Disk*, S. J. Desch, A. Krot & C. M. O'D. Alexander, *Lunar and Planetary Science Conference*, 42, 2524 (2011).

58. *The Black Sheep of Haumea's Collisional Family*, J. C. Cook, S. J. Desch & M. Rubin, *Lunar and Planetary Science Conference* 42, 2503 (2011).

59. *A Model of the Moon's Volatile Depletion*, S. J. Desch & G. J. Taylor, *Lunar and Planetary Science Conference* 42, 2005 (2011).

60. *Thermal structure of protoplanetary disks undergoing layered accretion*, M. V. Lesniak & S. J. Desch, *American Astronomical Society Meeting*, 217, 340.06 (2011).

61. *The importance of experiments: Constraints on chondrule formation models*, S. J. Desch, M. A. Morris, H. C. Connolly & A. P. Boss, *Chondrules: Their role in solar system history*, 8008 (2010).

62. *Supernova dust injection into our solar system: Then and now*, T. Athanassiadou, S. J. Desch, B. Fields, N. Ouellette & F. Timmes, *Meteoritics and Planetary Science Abstracts* 73, 5356 (2010).

63. *Formation conditions of Type I chondrules: Comparison of experimentally determined cooling rates with the shock wave model for chondrule formation*, M. J. Wick, R. A. Jones, M. A. Morris & S. J. Desch, *Meteoritics and Planetary Science Abstracts* 73, 5278 (2010).

64. *Assessment of chondrule cooling rates in planetesimal bow shocks, including* H_2 *recombination*, M. A. Morris, S. J. Desch & F. J. Ciesla, *Meteoritics and Planetary Science Abstracts* 73, 5215 (2010).

65. *The effects of layered accretion in protoplanetary disks on midplane temperatures*, M. Lesniak & S. J. Desch, *Disks, Meteorites, Planetesimals Workshop*, 6011 (2010).

66. *Injection of clumpy supernova ejecta into protoplanetary disks*, N. Ouellette & S. J. Desch, *Disks, Meteorites, Planetesimals Workshop*, 6014 (2010).

67. *Design and Implementation of the NUV/optical widefield Star Formation Camera for the Theia observatory*, P. Scowen, R. Jansen & 22 coauthors, Space Telescopes and Instrumentation 2010: Optical, Infrared, and Millimeter Wave. (eds. J. M. Oschmann, Jr., M. C. Clampin, & H. A. MacEwen) Proceedings of the Society of Photo-Optical Engineers, 7731, pp. 77314Y-77314Y-10 (2010).

68. *Supernova dust injection in the solar system: Then and now*, T. Athanassiadou, S. Desch, B. Fields, N. Ouellette & F. Timmes, *Astrobiology Science Conference 2010* 5581 (2010).

69. *Mixing of supernova ejecta into molecular clouds*, L. Pan, S. Desch, E. Scannapieco & F. Timmes, *Astrobiology Science Conference 2010*, 5580 (2010).

70. *Isotopic effects of supernova Al 26 injected into the forming solar system, and observable proxies for Al 26 in supernova remnants*, C. Ellinger, P. A. Young & S. J. Desch, *Astrobiology Science Conference 2010*, 5453 (2010).

71. *Amphitrite: A twist on Triton's capture*, S. Desch & S. Porter, *Lunar and Planetary Science Conference* 41, 2625 (2010).

72. *Preliminary assessment of chondrule cooling rates in planetesimal bow shocks, including the heating effects of H2 recombination*, M. A. Morris, S. J. Desch & F. J. Ciesla, *Lunar and Planetary Science Conference* 41, 2393 (2010).

73. *A critical examination of the X wind model for the formation of chondrules and CAIs*, S. J. Desch, M. A. Morris & H. C. Connolly, Jr., *Lunar and Planetary Science Conference*, 41, 2200 (2010).

74. *The HORUS Observatory - a next generation mission to study planetary, stellar and galactic formation*, P. A. Scowen, et al., *American Astronomical Society* 215, 481.06 (2010).

75. *Micrometeorite Annealing of Solar System Icy Objects*, S. B. Porter, S. J. Desch & J. C. Cook, *American Astronomical Society Division of Planetary Sciences Meeting* 41, 6508 (2009).

76. *Titan's Methane as a Primordial Chemical Species*, S. R. Glein, S. J. Desch & E. L. Shock, *American Astronomical Society Division of Planetary Sciences Meeting* 41, 3307 (2009).

77. *Thermal Histories of Chondrules in Solar Nebula Shocks*, M. A. Morris, S. J. Desch & F. J. Cielsa, *Meteoritics and Planetary Science Abstracts* 72, 5423 (2009).

78. *Solar System Shifts in Oxygen Isotopes Associated with Supernova Injection of Aluminun 26*, C. A. Ellinger, P. A. Young & S. J. Desch, *Meteoritics and Planetary Science Abstracts* 72, 5385 (2009).

79. *The effect of layered accretion on the temperature structure of protoplanetary disks*, M. Lesniak and S. J. Desch, *American Astronomical Society Meeting* 214, 605.04 (2009).

80. *Condensation in supernova ejecta at high spatial resolution*, A. V. Fedkin, B. S. Meyer, L. Grossman and S. J. Desch, *Lunar and Planetary Science Conference* 40, 1699 (2009).

81. *Examination of the K-band spectrum of Charon: Possible evidence for multiple ammonia ices*, J. C. Cook, C. B. Olkin, S. J. Desch, R. M. Mastrapa, T. L. Roush and A. J. Verbiscer, *Lunar and Planetary Science Conference* 40, 2222 (2009).

82. *Tying up loose ends in chondrule formation by shocks*, M. A. Morris, S. J. Desch and F. J. Ciesla, *Lunar and Planetary Science Conference* 40, 2300 (2009).

83. *Opaques in Mercury's crust: Additional evidence for a low-FeO magma ocean*, M. A. Riner, P. G. Lucey, S. J. Desch and F. M. McCubbin, *Lunar and Planetary Science Conference* 40, 2062 (2009).

84. *Star Formation Environment as a Control on Planetary Growth*, S. J. Desch, Proceedings of *Planet Formation and Evolution: The Solar System and Extrasolar Planets*, Tübingen, Germany, March 16-20 (2009).

85. *Cooling of dense gas by H2O line emission and an assessment of its effects in chondrule-forming shocks*, M. A. Morris, S. J. Desch and F. J. Ciesla, *American Astronomical Society Meeting* 213, 441.05 (2009).

86. *Design and implementation of the Widefield High-resolution UV/Optical Star Formation Camera for the THEIA Mission*, P. Scowen and 24 coauthors, *American Astronomical Society Meeting* 213, 458.02 (2009).

87. *From cosmic dawn to our Solar System: Design reference science program for the Star Formation Camera aboard the Theia Space Telescope*, R. Jansen and 21 coauthors, *American Astronomical Society Meeting* 213, 458.03 (2009).

88. *THEIA: Telescope for Habitable Exoplanets and Interstellar/Intergalactic Astronomy*, D. Spergel and 49 coauthors, *American Astronomical Society Meeting* 213, 458.04 (2009).

89. *The Star Formation Observatory (SFO) mission to study cosmic origins near and far*, P. Scowen and 21 coauthors, *Proceedings of the Society of Photo-Optical Instrumentation Engineers*, 7010, 115 (2008).

90. *Micrometeorite Annealing of Outer Planet Icy Satellite Surfaces* S. B. Porter, S. J. Desch, J. C. Cook *Lunar and Planetary Science Conference* 39, 2102 (2008).

91. *Mass Distribution and Planet Formation in the Solar Nebula* S. J. Desch *Lunar and Planetary Science Conference* 39, 1004 (2008).

92. *An Analysis of Triggered Star Formation in the H II Region NGC 2467* K. D. Snider, J. J. Hester, S. J. Desch, K. R. Healy & J. Bally *American Astronomical Society Meeting* 211, 89.08 (2008).

93. *Near Infrared Spectroscopy of Kuiper Belt Objects: More than just Water Ice* J. C. Cook, S. J. Desch, T. L. Roush *American Astronomical Society Division of Planetary Sciences Meeting* 39, 49.07 (2007).

94. *Near-Infrared Spectra of Kuiper Belt Objects: More than just Water Ice* J. C. Cook, S .J. Desch, T. L. Roush *Workshop on Ices, Oceans and Fire: Satellites of the Outer Solar System*, Boulder, Colorado, August 13-15 (2007).

95. *The Effect of Line Cooling in Chondrule-Forming Shocks* M. A. Morris, S. J. Desch & F. J. Ciesla *Meteoritics and Planetary Sciences Abstracts* 42, 5214 (2007).

96. *Inti did not Form in an X-Wind (And Neither did Most CAIs)* S. J. Desch & H. C. Connolly, Jr. *Meteoritics and Planetary Sciences Abstracts* 42, 5073 (2007).

97. *Injection of Supernova Dust Grains into Protoplanetary Disks* N. Ouellette, S. J. Desch & J. J. Hester *Meteoritics and Planetary Sciences Abstracts* 42, 5036 (2007).

98. *A Core-Collapse Supernova as the Source of Short-Lived Radionuclides in the Solar System* C. Ellinger, S. J. Desch, & N. Ouellette *Meteoritics and Planetary Sciences Abstracts* 42, 5214 (2007).

99. *Progress in Planetary Lightning* S. J. Desch, *International Science Institute - Europlanet Workshop of Planetary Atmospheric Electricity*, Bern, Switzerland July 23-27 (2007).

100. *The Effect of Line Cooling in Chondrule-Forming Shocks* S. J. Desch, F. J. Ciesla & M. A. Morris *Lunar and Planetary Science Conference* 38, 1887 (2007).

101. *Cryovolcanism on Charon and Other Kuiper Belt Objects* S. J. Desch, J. C. Cook, W. Hawley & T. C. Doggett *Lunar and Planetary Science Conference* 38, 1901 (2007).

102. *Injection of Supernova Dust Grains into Protoplanetary Disks* N. Ouellette & S. J. Desch *Lunar and Planetary Science Conference* 38, 1909 (2007).

103. *Spitzer Imaging of NGC 2467: Evidence for Triggered Low-Mass Star Formation in H II Region Environments* K. D. Snider, J. J. Hester, S. J. Desch, K. R. Healy & J. Bally *Amer. Astron. Soc.* 209, 105.15 (2007).

104. *Constraints on Atmospheric Dust Properties in Radiative Transfer Models for Mars* N. L. Goldenson, S. J. Desch & P. Christensen *AGU Fall Meeting* #A13B-0899 (2006).

105. *Near-Infrared Spectroscopy of Charon: Possible Evidence for Cryovolcanism on Kuiper Belt Objects*, J. C. Cook, S. J. Desch, T. L. Roush, T. R. Geballe & C. A. Trujillo *AAS Div. Planet. Sci.* 38, 21.02 (2006).

106. *A Scenario for Low-Mass Star Formation in H II Region Environments*, K. D. Snider, J. J. Hester, S. J. Desch, K. R. Healy, N. Ouellette, B. A. Whitney & A. S. Cotera *IAU Symposium* 237, #212 (2006).

107. *Investigations into Dust Charging and Transport in Martian and Terrestrial Dust Devils*, S. J. Desch, G. R. Wilson, B. Perret, L. D. V. Neakrase & R. Greeley *Lunar and Planetary Science Conference* 37, 1983 (2006).

108. *Near-Infrared Spectra of Charon: Support for Cryovolcanism on Kuiper Belt Objects?* Cook, J. C., S. J. Desch, T. Roush, T. R. Geballe & C. A. Trujillo *Lunar and Planetary Science Conference* 37, 2107 (2006).

109. *Evaporation / Condensation of Chondritic Chondrule Precursors in Nebula Shocks*, Alexander, C. M. O'D. & S. J. Desch *Lunar and Planetary Science Conference* 37, 2303 (2006).

110. *Efficiency of Mixing of Supernova Ejecta into Nearby Protoplanetary Disks*, N. Ouellette & S. J. Desch *Lunar and Planetary Science Conference* 37, 2348 (2006).

111. *Injection of Short-Lived Radionuclides by a Nearby Supernova into a Protoplanetary Disk*, N. Ouellette & S. J. Desch *Protostars and Planets V*, 8467 (2005).

112. *The Meaning of Iron 60: A Nearby Supernova Injected Radionuclides into our Solar System*, S. J. Desch, N. Ouellette & J. J. Hester *Meteoritic. Planet. Sci. Abs.* 40, 5264 (2005).

113. *Limitations on the Production of Short-Lived Radionuclides by Irradiation in the Early Solar System* S. J. Desch *Meteoritics and Planetary Sciences Abstracts* 40, 5265 (2005).

114. *Visible and Near-Infrared Spectra of Comet 29P/Schwassmann-Wachmann 1*, J. C. Cook, S. J. Desch & S. Wyckoff *American Astronomical Society Division of Planetary Sciences Meeting* 37, 16.05 (2005).

115. *The Meaning of Iron 60: A Nearby Supernova Injected Short-Lived Radionuclides into our Protoplanetary Disk* S. J. Desch & N. Ouellette *Lunar and Planetary Science Conference* 36, 1327 (2005).

116. *Understanding our Origins: Star Formation in H II Region Environments* J. J. Hester, K. R. Healy & S. J. Desch *American Astronomical Society Meeting* 205, 105.01 (2005).

117. *A Systematic Survey of Star Formation with the ORION MIDEX Mission*, P. Scowen et al. *American Astronomical Society Meeting* 205, 109.05 (2005).

118. *The Aerogel Model for the Origin of the Short-Lived Radionuclides in the Early Solar System* S. J. Desch, N. Ouellette, J. J. Hester & L. A. Leshin *American Astronomical Society Meeting* 205, 127.03 (2005).

119. *A Systematic Survey of Star Formation with the ORION MIDEX Mission*, P. Scowen et al. *American Astronomical Society Meeting* 204, 11.04 (2004).

120. *Making Water Worlds: The Importance of Aluminum 26*, S. J. Desch & L. A. Leshin *Lunar and Planetary Science Conference* 35, 1987 (2004).

121. *Late Injection of Radionuclides into Solar Nebula Analogs in Orion*, N. Ouellette & S. J. Desch *Lunar and Planetary Science Conference* 35, 2116 (2004).

122. *An Interstellar Origin for the Beryllium 10 in CAIs and Implications for our Solar System's Birth Environment*, S. J. Desch, H. C. Connolly, Jr. & G. Srinivasan *American Astronomical Society Meeting* 7.01 (2004).

123. *A Cosmic-Ray Origin for CAI Beryllium 10*, S. J. Desch & H. C. Connolly, Jr. *Meteoritics and Planetary Science Abstracts* 38, A133 (2003).

124. *An Interstellar Origin for the Beryllium 10 in CAIs*, S. J. Desch, H. C. Connolly, Jr. & G. Srinivasan *Lunar and Planetary Science Conference* 34, 1394 (2003).

125. *Mineralogy of Silicate Dust Grains in the Disk around TW Hydrae* L. Hutchison & S. J. Desch *American Astronomical Society Division of Planetary Sciences Meeting* 34, 29.01 (2002).

126. *Constraining the Environment in which Chondrules were Melted by Nebula Shocks*, S. J. Desch, H. C. Connolly, Jr. & D. E. Moser, *Meteoritics and Planetary Sciences Abstracts* 37, A41 (2002).

127. *Constraining the Environment in which Chondrules were Melted by Nebula Shocks*, S. J. Desch, H. C. Connolly, Jr. & D. E. Moser, *Lunar and Planetary Science Conference* 33, 1768 (2002).

128. *Annealing of Silicate Dust by Nebula Shocks at 10 AU*, D. E. Harker & S. J. Desch *Lunar and Planetary Science Conference* 33, 2002 (2002).

129. *Shock Chemistry in the Inner Solar Nebula*, M. E. Kress & S. J. Desch, *Lunar and Planetary Science Conference* 32, 2096 (2001).

130. *Melting of Chondrules and Type B CAIs by Nebula Shocks* S. J. Desch & H. C. Connolly, Jr., *Lunar and Planetary Science Conference* 32, 2163 (2001).

131. *Shock Chemistry in the Inner Solar Nebula*, M. E. Kress & S. J. Desch, *Proceedings, NASA Astrobiology Institute*, 331 (2001).

132. *An Astrophysical Model for the Formation of Zoned Iron-Nickel Metal Grains in the Bencubbin/ CH-like Chondrites QUE 94411 and Hammadah Al Hamra 237*, A. Meibom, S. J. Desch, A. N. Krot, J. N. Cuzzi, J. A. Wood & K. Keil, *Meteoritics and Planetary Science Abstracts* 35, A107 (2001).

133. *Large-Scale Thermal Events Recorded in FeNi Metal Condensates in CH Chondrites*, A. Meibom, S. J. Desch, A. N. Krot, J. N. Cuzzi, M. I. Petaev, L. Wilson & K. Keil, *Lunar and Planetary Science Conference* 31, 1777 (2000).

134. *Astrophysical Constraints on Chondrule Formation Theories*, S. J. Desch, *Lunar and Planetary Science Conference* 31, 1923 (2000).

135. *The Generation of Lightning in the Solar Nebula*, S. J. Desch & J. N. Cuzzi, *Lunar and Planetary Science Conference* 30, 1962 (1999).

136. *Electrostatics of Saltating Particles*, S. J. Desch & G. R. Wilson, *Lunar and Planetary Science Conference* 28, 295 (1997).

137. *Infrared Polarization in the Molecular Disk at the Galactic Center*, S. J. Desch & W. G. Roberge, in *Polarimetry of the Interstellar Medium*, eds. W. G. Roberge & D. C. B. Whittet (ASP Vol. 97), p. 450 (1996).

138. *The Abundances of Charged Particles in Dense Protostellar Cores*, S. J. Desch, in *From Stardust to Planetesimals*, eds. M. E. Kress, A. G. G. M. Tielens & Y. Pendleton (NASA CP-3343), p. 143 (1996).

139. *Grain Alignment and Polarized Emission from Molecular Accretion Disks*, W. G. Roberge & S. J. Desch, *American Astronomical Society Meeting* 22, 1256 (1990).

Invited Talks at Scientific Meetings

1. *Meteoritic and Planetary Constraints on our Protoplanetary Disk*, invited talk at the *Non-ideal Magnetohydrodynamics in Protoplanetary Disks* workshop, Copenhagen, Denmark, August 7, 2014.

2. *Habitability vs. Detectability*, invited panelist at the Origins 2014 (2nd ISSOL - The International Astrobiology Society and Bioastronomy Joint International Conference), Nara, Japan, July 8, 2014.

3. *Geological Processes on Kuiper Belt Objects*, invited talk at the DAWN Science Team Workshop, Jet Propulsion Laboratory, Pasadena, CA, August 13, 2012.

4. *Impacts giveth water, Impacts taketh water away*, invited talk at the NAI Focus Group Workshop on Origin of Earth's Water, Breiddalsvik, Iceland, September 3-12, 2011.

5. *Origins of the Short-Lived Radionuclides and the Astrophysical Environment of the Solar System's Formation*, invited talk at the Gordon Research Conference, Origins of Solar Systems, July 24, 2011.

6. *Water Worlds: How common are they? Was Earth one? How habitable are they?*, invited talk at the NAI Focus Group Workshop "Revisiting the Habitable Zone", Seattle WA, August 3-5, 2010.

7. *The Importance of Experiments: Constraints on Chondrule Formation Models*, invited talk at the Symposium, Chondrules: Their Role in Early Solar System History, New York City, NY, July 31, 2010.

8. *The Role of Star-Forming Environment on Protoplanetary Disk Evolution*, invited talk at Planet Formation and Evolution: The Solar System and Extrasolar Planets, Tübingen, Germany, March 2-6, 2009.

9. *Aluminum 26 and Waterworlds*, invited plenary talk at the Astrobiology Science Conference, Santa Clara, CA, April 14-17, 2008.

10. *Which parts of Protoplanetary Disks are Susceptible to the Magnetorotational Instability?*, invited talk at the Workshop, Planet Formation Processes and the Development of Prebiotic Conditions, Pasadena, CA, March 18-21, 2008.

11. *Meteoritic Constraints on Protoplanetary Disks*, invited talk at the Workshop, From Protostellar Disks to Planetary Systems, London Ontario, May 17-18, 2006

12. *Shock Heating: Effects on Chondritic Material*, invited talk at the Chondrites and the Protoplanetary Disk meeting, Kauai, Hawaii, November 8-11, 2004

13. *Chondrule Formation*, invited talk at the Gordon Research Conference on Origins of Solar Systems, Bristol, Rhode Island, July 5-9, 2003

Contributed Talks at Topical Conferences

1. *Stars/Disks/Planets/Earth, Planet diversity / how does that work?*, Planetary Diversity Workshop, Earth Life Science Institute, Tokyo, Japan, November 14, 2016.

2. *Isotopic Mixing by Magnetorotational Instability in the Protolunar Disk*, American Astronomical Society Meeting Division of Planetary Sciences 48, Pasadena, CA, October 21, 2016.

3. *Radial Drift and Snow Lines in Photoevaporated Protoplanetary Disks*, Linking Exoplanet and Disk Compositions, Baltimore, MD, September 13, 2016.

4. *On the Nature of Snow Lines in Protoplanetary Disks*, Sant Cugat Forum on Astrophysics, Barcelona, Spain, April 20, 2016.

5. *Report on the Upstairs/Downstairs Workshop Without Walls*, NAPSA Workshop on Exoplanets and Habitability: Connecting the Very Large to the Very Small, Lowell Observatory, Flagstaff, AZ, March 2, 2016.

6. *Differentiation and Cryovolcanism in the Pluto-Charon System*, Lunar and Planetary Science Conference 47, The Woodlands, TX, March 23, 2016.

7. *Resolved: Composition doesn't matter!*, Upstairs/Downstairs Workshop Without Walls, Tempe, AZ, February 18, 2016.

8. *High-Temperature Ionization of Dusty Plasmas, and Implications for Chondrule Formation in Current Sheets*, 78th Annual Meeting of the Meteoritical Society, Berkeley, CA, July 27, 2015.

9. *On the Origin of Haumea*, Lunar and Planetary Science Conference 46, The Woodlands, TX, March 16, 2015.

10. *Abundances of Elements in Jupiter's Atmosphere*, American Astronomical Society Division of Planetary Sciences Meeting 46, Tucson, AZ, November 14, 2014.

11. *Snow Lines in Photoevaporated Protoplanetary Disks*, Characterizing Planetary Systems Across the HR Diagram, Cambridge, UK, July 31, 2014.

12. *Formation of Pluto and Charon from Two Partially Differentiated Impactors*, Lunar and Planetary Science Conference 45, The Woodlands, TX, March 18, 2014.

13. *The Effect of Rayleigh-Taylor Instabilities on the Thickness of Undifferentiated Crust on Kuiper Belt Objects*, Workshop on Icy Worlds, Pasadena, CA, February 6, 2014.

14. *Magnetic Fields in Chondrule-Forming Shocks*, 76th Annual Meeting of the Meteoritical Society, Edmonton, Alberta, Canada, August 1, 2013.

15. *Distinguishing Pluto-Charon Formation Scenarios Using the Partial Differentiation of their Impactors*, The Pluto System on the Eve of Exploration by New Horizons: Perspectives and Predictions, Columbia MD, July 24, 2013.

16. *Mixing and Loss of Volatiles from the Protolunar Disk*, NASA Lunar Science Institute Workshop Without Walls: Lunar Volatiles, May 23, 2013.

17. *Snow Lines in Externally Photoevaporated Protoplanetary Disks*, Lunar and Planetary Science Conference 43, The Woodlands, TX, March 16, 2012.

18. *Clumpy Supernova Injection into Forming Planetary Systems*, Workshop on First Solids Formed in the Solar System, Poipu, Kauai, November 8, 2011.

19. *The effect of Rayleigh-Taylor instabilities on the thickness of undifferentiated Kuiper Belt Objects like Charon*, New Horizons Science Workshop, Lowell Observatory, Flagstaff, AZ, August 31, 2011.

20. *The Black Sheep of Haumea's Collisional Family*, Lunar and Planetary Science Conference 42, March 8, 2011.

21. *A Model of the Moon's Volatile Depletion*, Lunar and Planetary Science Conference 42, March 8, 2011.

22. *A Critical Examination of the X-Wind Model of Chondrule and CAI Formation and Radionuclide Production*, Lunar and Planetary Science Conference 41, March 1, 2010

23. *Solar System Shifts in Oxygen Isotopes Associated with Supernova Injection of Aluminum 26*, 72nd Annual Meeting of the Meteoritical Society, Nancy, France, July 17, 2009

24. *Origin of Earth's Water*, Origins Symposium, Cave Creek, AZ, April 4, 2009

25. *Cryovolcanism on Charon and other Kuiper Belt Objects*, *Astrobiology Science Conference*, Santa Clara, CA, April 16, 2008

26. *Mass Distribution and Planet Formation in the Solar Nebula*, Lunar and Planetary Science Conference 39, Houston, TX, March 12, 2008

27. *Inti Didn't Form in the X Wind (and Neither did Most CAIs)*, 70th Annual Meeting of the Meteoritical Society, Tucson, AZ, August 13, 2007

28. *Cryovolcanism on Charon and other Kuiper Belt Objects*, Lunar and Planetary Science Conference 38, Houston, Texas, March 14, 2007

29. *Development of a Numerical Model of Dust Charging and Transport in Dust Devils*, Workshop on Dust Devils on Earth and Mars, Flagstaff, Arizona, September 19, 2005

30. *Limitations on the Production of Short-Lived Radionuclides by Irradiation in the Early Solar System*, 68th Annual Meeting of the Meteoritical Society, Gatlinburg, Tennessee, September 12, 2005

31. *The Meaning of Iron 60: A Nearby Supernova Injected Radionuclides into our Protoplanetary Disk*, Lunar and Planetary Science Conference 36, Houston, Texas, March 18, 2005

32. *The Aerogel Model for the Origin of the Short-Lived Radionuclides in the Early Solar System*, 205th Meeting of the American Astronomical Society, San Diego, California, January 12, 2005

33. *Late Injection of Radionuclides into Solar Nebula Analogs in Orion*, Lunar and Planetary Science Conference 35, Houston, Texas, March 15, 2004

34. *An Interstellar Origin for the Beryllium 10 in CAIs*, Steward Observatory Internal Symposium, Tucson AZ, October 6, 2003

35. *An Interstellar Origin for the Beryllium 10 in CAIs*, 66th Annual Meeting of the Meteoritical Society, Muenster, Germany, July 28, 2003

36. *An Interstellar Origin for the Beryllium 10 in CAIs*, Lunar and Planetary Science Conference 34, Houston, Texas, March 21, 2003

37. *Constraining the Environment in which Chondrules were Melted by Solar Nebula Shocks*, 65th Annual Meeting of the Meteoritical Society, Los Angeles, California, July 22, 2002

38. *Constraining the Environment in which Chondrules were Melted by Solar Nebula Shocks*, Lunar and Planetary Science Conference 33, Houston, Texas, March 12, 2002

39. *Melting of Chondrules and Type B CAIs by Solar Nebula Shocks*, Lunar and Planetary Science Conference 32, Houston, Texas, March 12, 2001

40. *Signatures of Disequilibrium Chemistry in the Solar Nebula*, American Chemical Society Meeting, Washington DC, August 18, 2000

41. *Astrophysical Constraints on Chondrule Formation Theories*, Lunar and Planetary Science Conference 31, Houston, Texas, March 16, 2000

42. *The Generation of Lightning in the Solar Nebula*, Lunar and Planetary Science Conference 30, Houston, Texas, March 17, 1999

Colloquia and Seminars

1. *Geophysics and Geochemistry of Dwarf Planets*, Department of Planetary Sciences, California Institute of Technology, May 31, 2016.

2. *The Physics of Dwarf Planets*, Department Physics, Arizona State University, January 28, 2016.

3. *The Sun Formed in a Massive Star-Forming Region*, University of Hawaii (remotely), January 25, 2016.

4. *The Sun Formed in a Massive Star-Forming Region*, Department of Astronomy, University of Washington, November 3, 2015.

5. *The Sun Formed in a Massive Star-Forming Region*, Center for Exoplanets and Habitable Worlds, Pennsylvania State University, State College, PA, September 14, 2015.

6. *Chondrule Formation in Bow Shocks around Planetary Embryos*, Center for Exoplanets and Habitable Worlds, Pennsylvania State University, State College, PA, September 16, 2015.

7. *Geophysics and Geochemistry of Dwarf Planets*, Southwest Research Institute, Boulder CO, May 5, 2015.

8. *The Sun Formed in a Massive Star-Forming Region*, Lowell Observatory, Flagstaff, AZ, April 30, 2015.

9. *Differentiation on Small Icy Bodies*, Jet Propulsion Laboratory, Pasadena, CA, April 9, 2015.

10. *Chondrule Formation in Bow Shocks around Planetary Embryos*, Lunar and Planetary Laboratory, University of Arizona, Tucson, AZ, April 7, 2015.

11. *Meteoritic and Planetary Constraints on our Protoplanetary Disk*, Jet Propulsion Laboratory, Pasadena, CA, February 18, 2015.

12. *Meteoritic and Planetary Constraints on our Protoplanetary Disk*, Department of Physics and Astronomy, University of British Columbia, Vancouver BC, February 2, 2015.

13. *Comets!*, Hawaii / Nordic Astrobiology Winter School, Kilauea HI, January 7, 2014.

14. *Cosmochemistry Primer*, Hawaii / Nordic Astrobiology Winter School, Kilauea HI, January 1, 2014.

15. *The Sun formed in a large cluster: Star formation and Protoplanetary Disk Processes*, Department of Geology, Indiana University, April 23, 2013.

16. *The Sun formed in a Large Cluster: Short-Lived Radionuclides in the Meteoritic Record*, Department of Geology, Indiana University, April 22, 2013.

17. *Predicting the Water Content of Earth, Gliese 581g and other Planets*, School of Earth and Space Exploration, Arizona State University, Tempe, AZ, October 31, 2012.

18. *Chondrule Formation in Bow Shocks around Planetary Embryos*, Southwest Research Institute, Boulder, CO, July 31, 2012.

19. *Geological Processes on Kuiper Belt Objects*, School of Earth and Space Exploration, Arizona State University, Tempe, AZ, October 26, 2011

20. *Chondrule Formation in Nebular Shocks*, Earth and Planetary Sciences, University of New Mexico, Albuquerque, NM, October 7, 2011

21. *Geological Processes on Kuiper Belt Objects*, Lunar and Planteary Laboratory, University of Arizona, Tucson, AZ, February 1, 2011

22. *Water worlds near and far*, NASA Astrobiology Institute, University of Hawaii, Honolulu, HI, October 4, 2010

23. *Mass Distribution and Planet Formation in the Solar Nebula*, Hawaii Institute of Geophysics and Planetology, University of Hawaii, Honolulu, HI, September 1, 2010

24. *Mass Distribution and Planet Formation in the Solar Nebula*, Department of Physics and Astronomy, San Jose State University, March 11, 2010

25. *Mass Distribution and Planet Formation in the Solar Nebula*, Department of Physics and Astronomy, University of California San Francisco, March 7, 2010

26. *Transient Heating of Meteoritic Materials in Solar Nebula Shocks*, Dept. Physics and Astronomy, University of Rochester, Rochester, NY, April 27, 2009.

27. *A Kuiper Belt Double Feature*, Lowell Observatory, Flagstaff, AZ, January 30, 2009.

28. *A Kuiper Belt Double Feature*, Southwest Research Institute, Boulder CO, July 28, 2008.

29. *A Supernova Origin of the Radionuclides in Meteorites: The Sun Grew up in a Rough Neighborhood*, University of Illinois Astronomy Department, September 25, 2007

30. *Cryovolcanism on Charon and Other Kuiper Belt Objects*, Astrobiology Institute, University of Colorado, Boulder, February 21, 2007

31. *The Astrophysical Origins of the Short-Lived Radionuclides in the Early Solar System*, University of Toronto, Toronto, ONT, September 15, 2006

32. *Meteoritic Constraints on Protoplanetary Disks*, University of Toronto, Toronto, ONT, September 14, 2006

33. *Meteoritic Constraints on Protoplanetary Disks*, American University of Beirut, Beirut, Lebanon, July 4, 2006

34. *Origin of the Short-Lived Radionuclides in the Early Solar System*, University of California, Los Angeles, Los Angeles, CA, November 30, 2004

35. *Chondrule Formation by Solar Nebula Shocks*, Indiana University, Bloomington, Indiana, April 20, 2004

36. *Meteoritic Constraints on Astrophysical Models of Star and Planet Formation*, Arizona State University, Tempe, AZ, January 21, 2004

37. *Chondrule Formation*, University of Arizona, Tucson, AZ, November 18, 2003

38. *Chondrule Formation*, Society of Physics Students, Arizona State University, Tempe, AZ, September 3, 2003

39. *Magnetic Fields, Meteorites and Me*, Arizona State University, Tempe, AZ, April 14, 2003

40. *The Magnetic Decoupling Stage of Star Formation*, George Mason University, Fairfax, VA, March 7, 2003

41. *The Magnetic Decoupling Stage of Star Formation*, Department of Terrestrial Magnetism, Carnegie Institution of Washington, Washington DC, March 3, 2003

42. *The Magnetic Decoupling Stage of Star Formation*, University of Georgia, Athens, GA, February 20, 2003

43. *Melting of Chondrules by Nebula Shocks*, University of Chicago, Chicago, IL, November 15, 2002

44. *Melting of Chondrules by Nebula Shocks*, Rensselaer Polytechnic Institute, Troy, NY, September 9, 2002

45. *Melting of Chondrules by Nebula Shocks*, Department of Terrestrial Magnetism, Carnegie Institution of Washington, Washington DC, July 10, 2002

46. *Melting of Chondrules by Nebula Shocks*, American Museum of Natural History, New York, NY, June 28, 2002

47. *Are Magnetorotational Instabilities Relevant to Protoplanetary Disks?*, University of Maryland, College Park, MD, March 26, 2002

48. *Melting of Chondrule by Nebula Shocks*, Rutgers University, New Brunswick, NJ, November 28, 2001

49. *Generation of Lightining in the Solar Nebula*, Department of Terrestrial Magnetism, Carnegie Institution of Washington, Washington DC, September 22, 2001

50. *Generation of Lightning in the Solar Nebula*, NASA Goddard Space Flight Center, Greenbelt, MD January 11, 2001

51. *Generation of Lightning in the Solar Nebula*, University of Maryland, College Park, MD, November 7, 2000

52. *Lightning in the Solar Nebula*, Lockheed-Martin Corporation, Palo Alto, CA, April 8, 1999

53. *The Magnetic Decoupling Stage of Star Formation*, NASA Ames Research Center, Moffett Field, CA, December 13, 1998

54. *The Generation of Lightning in the Solar Nebula*, Center for Star Formation, NASA Ames Research Center, Moffett Field, CA , May 10, 1996

Public Talks

1. *The Physics of the Space Race*, East Valley Astronomy Club, Gilbert, AZ, January 20, 2017.

2. *Dawn at Ceres and New Horizons at Pluto/Charon*, West Valley Astronomy Club, Surprise, AZ, November 29, 2016

3. *New Horizons: Mission to the Pluto System and the Kuiper Belt*, Earth and Space Exploration Day, Arizona State University, Tempe, AZ, November 7, 2015

4. *Dwarf Planets, Far Away and Up Close*, Astronomy Open House, Arizona State University, Tempe, AZ, September 25, 2015

5. *New Horizons and Pluto and Charon, Our First Exploration of the Kuiper Belt*, New Horizons at Pluto Event, Arizona State University, Tempe, AZ, July 14, 2015

6. *Dwarf Planets, Far Away and Up Close*, East Valley Astronomy Club, Gilbert, AZ, May 15, 2015

7. *The Funding Game*, Phoenix Comicon, Phoenix, AZ, May 30, 2015

8. *Exoplanet Survivor*, Phoenix Comicon, Phoenix, AZ, June 7, 2014

9. *Who Wants to be a One-In-A-Millionaire*, Phoenix Comicon, Phoenix, AZ, June 6, 2014

10. *Comets!*, ASU Astronomy Open House, Tempe, AZ, November 22, 2013.

11. *The Sun Formed in a Massive Star-Forming Region: Evidence from SLRs in Meteorites*, East Valley Astronomy Club, Gilbert, AZ, November 20, 2013.

12. *Water Worlds*, SEDS Space Vision Conference, Tempe, AZ, November 9, 2013.

13. *Meteorites*, Phoenix Comicon, Phoenix AZ, May 26, 2013.

14. *Adventures in Astronomy*, Phoenix Comicon, Phoenix AZ, May 25, 2013.

15. *Strange New Worlds*, Phoenix Comicon, Phoenix AZ, May 25, 2013.

16. *Exploring the Solar System*, Phoenix Comicon, Phoenix AZ, May 24, 2013.

17. *Asteroid Apocalypse*, Phoenix Comicon, Phoenix AZ, May 24, 2013.

18. *How Physics Shaped the Space Race*, Arizona Academic Decathlon, Tempe, AZ, November 3, 2012.

19. *Predicting the Water Content of Earth, Gliese 581g and other Planets*, East Valley Astronomy Club, Gilbert, AZ, August 17, 2012.

20. *Dwarf Planets (Vesta, Ceres and Pluto) and the missions to visit them (Dawn and New Horizons)*, West Valley Astronomy Club, Surprise, Arizona, November 29, 2011.

21. *Geological Processes on Kuiper Belt Objects*, East Valley Astronomy Club, Gilbert, Arizona October 21, 2011

22. *Who Wants to be a One-In-A-Millionaire*, NASA Astrobiology Institute / Institute for Astronomy Community Event, Honolulu, HI, November 17, 2010.

23. *Cryovolcanism on Charon and Other Kuiper Belt Objects*, Hawaii Space Lecture Series, University of Hawaii, Honolulu, HI, September 28, 2010

24. *Cryovolcanism on Charon and Other Kuiper Belt Objects*, Saguaro Astronomy Club, Phoenix, AZ, August 7, 2009

25. *Cryovolcanism on Charon and Other Kuiper Belt Objects*, East Valley Astronomy Club, Gilbert, AZ, April 17, 2009

26. *New Developments in the Formation of the Solar System*, East Valley Astronomy Club, Gilbert, AZ, May 18, 2007

Presentations in Mass Media

1. *Article, "What Arrival gets right about how humans would react to alien life"*, *Slate*, December 19, 2016.
   `http://www.slate.com/articles/technology/future_tense/2016/12/what_arrival_gets_right_about_how_humans_would_react_to_alien_life.html`

2. *Interview (Regarding Aliens and Arrival)*, Destry Jetton, KPNX (Phoenix, Channel 12), Arizona Midday, November 3, 2016.
   `http://www.12news.com/entertainment/television/programs/arizona-midday/ufo-s-and-popcorn/347275729`.

3. *Interview (Regarding Leap Days)*, Tram Mai, KPNX (Phoenix, Channel 12), February 29, 2016.
   `http://www.12news.com/news/local/celebrating-the-leap-year/50665628`

4. *Interview (Regarding Meteorites)*, Julio Cisneros, Telemundo Noticieras (Phoenix, Channel 39), June 23, 2014 (in Spanish).

5. *NOVA: Science Now*, with Neil deGrasse Tyson, PBS, February 17, 2011.
   `http://www.pbs.org/video/1788861167/` (10 minute mark).

6. *How the Universe Works*, Discovery Channel, April 25, 2010.

7. *Interview (Regarding Uranus and Neptune)*, Guido Meyer, *Forschung Aktuell*, March 16, 2009.

8. *Interview (Regarding Uranus and Neptune)*, Tony Ganzer, KJZZ, Phoenix (NPR) Morning Edition, December 20, 2007.

9. *Naked Science*, "Birth of the Solar System", National Geographic Channel, November 6, 2007.

10. *Interview (Regarding Gliese 581c)*, Cronkite News Service, April 26, 2007.

11. *Interview (Regarding Pluto)*, William Pitt, KPNX (Phoenix, Channel 12) Television News, August 17, 2006.

12. *Hubble and Beyond: Telescopes in Space*, Discovery Science Channel, January 25, 2005.

13. *The Best of Our Knowledge*, WAMC Radio (NPR), September 13, 2002.

Service:

Department	Geophysics Search Committee (2016-)
Department	Undergraduate Oversight Committee (2016-)
Department	Personnel Committee (2015-2016)
Department	Exoplanet Cluster Hire Faculty Search Committee (2014-2015)
Department	Planetary Sciences Faculty Search Committee (2014-2015)
Department	Articulation Task Force (2007-present)
Department	F Wing Space Committee (2012-2013, 2015)
Department	Ad hoc Faculty Search Committee (2010-2011)
Department	Undergraduate Oversight Committee (2010-2013)
Department	Ad hoc Faculty Search Committee (2009-2010)
Department	Curriculum Development Committee (2008-2010)
Department	Awards Committee (2006-2007)
Department	Faculty Search Committee (2006-2007)
Department	IT Hiring Committee (2005-2006)
Department	Computer Committee [chair] (2005-2006)
Department	Faculty Search Committee (2004-2005)
Department	Committee on Committees (2004-2005)
Department	Tiger Team Committee (2003-2004)
College	College of Liberal Arts & Sciences Faculty Senate (2011-2015)
College	SESE Director Search Committee (2005-2006)
College	Vision Subcommittee, School of Earth and Space Exploration (2004-2005)
College	Steering Committee, School of Earth and Space Exploration (2004-2006)
University	Faculty Senate (2013-2016)

Service (cont.):

Professional	Chair, Local Organizing Committee and Scientific Organizing Committee, Astrobiology Science Conference, Mesa, AZ, April 24-28, 2017 (2017)
Professional	Chair, Organizing Committee, NExSS Winter School, Oracle AZ, February 21-27, 2016 (2016)
Professional	Scientific Organizing Committee, Upstairs/Downstairs Workshop Without Walls, Tempe AZ, February 17-19, 2016 (2016)
Professional	*Meteoritics and Planetary Science* Publication Committee (2012-2015)
Professional	Chair, Scientific Organizing Committee, Stellar Stoichiometry Workshop Without Walls, Tempe, AZ, April 11-12, 2013 (2013)
Professional	Panel Reviewer for Center for Advancement of Science in Space (2013)
Professional	Scientific Organizing Committee, Calcium-rich, aluminum-rich inclusions and solar system history Meeting, Kauai, Hawaii, November, 2011 (2011)
Professional	Subpanel Chief for NASA Origins Program (2007)
Professional	Associate Editor, Conference Proceedings, Chondrites and the Protoplanetary Disk (Astronomical Society of the Pacific), 2005
Professional	Scientific Organizing Committee, Chondrites and the Protoplanetary Disk Meeting, Kauai, Hawaii, November 8-11, 2004 (2004)
Professional	Panel Reviewer for NASA Origins Program (2001, 2006)
Professional	Panel Reviewer for Dudley Observatory Fullam Award (2002)
Professional	External Reviewer for NASA Planetary Science and Technology through Analog Research Program
Professional	External Reviewer for NASA Origins Program
Professional	External Reviewer for NASA Cosmochemistry Program
Professional	External Reviewer for NASA Mars Fundamental Research Program
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