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CHRONOLOGY OF EDUCATION

Washington University, St. Louis, MO

Dept. of Earth and Planetary Sciences

Ph.D. in Earth and Planetary Sciences, 1997

Thesis: Theoretical and Experimental Studies of Fe-Ni-S, Be, and B Cosmochemistry

Advisor: Bruce Fegley, Jr.

University of Arizona, Tucson, AZ

Depts. of Physics, Mathematics, and East Asian Studies

B.S. in Physics and Mathematics, Cum Laude, 1993

B.A. in Oriental Studies (emphasis: Japanese), Cum Laude, 1993

CHRONOLOGY OF EMPLOYMENT

Professor, Lunar and Planetary Laboratory, Dept. of Planetary Sciences, University of Arizona, Tucson, AZ; 2012 – present.

Principal Investigator, OSIRIS-REx Asteroid Sample Return Mission, NASA New Frontiers Program, 2011 – present.

Deputy Principal Investigator, OSIRIS-REx Asteroid Sample Return Mission, NASA New Frontiers Program, 2008 – 2011.

Associate Professor, Lunar and Planetary Laboratory, Dept. of Planetary Sciences, University of Arizona, Tucson, AZ; 2006 – 2012.

Assistant Professor, Lunar and Planetary Laboratory, Dept. of Planetary Sciences, University of Arizona, Tucson, AZ; 2001 – 2006.

Associate Research Scientist, Dept. of Chemistry & Biochemistry, Arizona State University, Tempe, AZ; 1999 – 2001.

Postdoctoral Research Associate, Dept. of Geology, Arizona State University, Tempe, AZ
Primary project: Transmission electron microscopy of meteoritic minerals.
Supervisor: Peter R. Buseck; Dates: 1997 – 1999.

Research Assistant, Dept. of Earth and Planetary Sciences, Washington Univ., St. Louis, MO
Primary project: Experimental studies of sulfide formation in the solar nebula.
Advisor: Bruce Fegley, Jr.; Dates: 1993 – 1997.

Research Intern, NASA Undergraduate Research Program, University of Arizona, Tucson, AZ
Primary project: Development of a logic-based language for S.E.T.I.
Advisor: Carl Devito; Dates: 1992 – 1993.

HONORS AND AWARDS

NASA Group Achievement Award – OSIRIS-REx Earth Gravity Assist Team (2018)
Silver Prize (for Constellations) – International Serious Play Board Game Award (2018)
Mensa Select Award (for Constellations) – Mensa Mind Games (2018)
University of Arizona, College of Humanities Alumni of the Year (2017)
NASA Silver Achievement Medal – OSIRIS-REx Asteroid Astronomy Science Team (2017)
NASA Group Achievement Award – OSIRIS-REx Mission Team (2017)
University of Arizona Alumni Achievement Award (2017)
Boys and Girls Clubs of America Alumni Hall of Fame (2017)
Arizonan of the Year (awarded to OSIRIS-REx) – Arizona Republic (2016)
Best Family Board Game of 2016 (for Xtronaut) – Good Housekeeping Magazine (2016)
Ceremonial First Pitch – Arizona Diamondbacks STEM Showcase (2016)
Robert H. Goddard Award for New Opportunities Captured for the OSIRIS-REx Team (2014)
Arizona Governor's Celebration of Innovation Award - Innovator of the Year – Academia (2011)
Antarctica Service Medal of the United States of America (2010)
Kavli Fellow of the National Academy of Sciences (2008)
Award of Excellence Top 10 Oral Presentation AAPG Annual Convention (2008)
UA College of Science Distinguished Early Career Teaching Award (2006)
Top 100 Science Discoveries – Discover Magazine (2004)
The Alfred O. Nier Prize of the Meteoritical Society (2002)
Asteroid 5819 named Lauretta (2002)
Stephen E. Dworkin Planetary Geoscience Award (1997)
Harvey H. Nininger Meteorite Award (1996)
Meteoritical Society Student Travel Grant (1994, 1996)
McDonnell Fellowship for the Space Sciences (1993-95)
NASA Undergraduate Research Space Grant (1992-93)
Silver Prize, Southwest Regional Japanese Essay Contest (1992)
Arizona Regents' Presidential Scholarship (1988-91)

SERVICE/OUTREACH

OUTREACH – LOCAL/STATE

Board of Directors, Boys and Girls Clubs of Tucson (2018 – present)
Guest Speaker, Atria Bell Court Gardens, Tucson, AZ – May 30, 2018
OSIRIS-REx Night, Dillinger Brewing Co., Tucson, AZ – May 24, 2018
Keynote Speaker, Stars Around Us Fundraiser, Intermountain Academy, Tucson, AZ –
May 3, 2018
Featured Speaker, LPL Alumni Event, Ventana Canyon, Tucson, AZ – November 29,
2017
Guest Speaker, University of Arizona, Honors Dormitory, Tucson, AZ – October 3, 2017
Featured Speaker, University of Arizona, Flandrau Planetary, Tucson, AZ, September 28,
2017
Featured Speaker, Arizona Technology Council, After-Hours Mixer, September 13, 2017
Featured Speaker, Boys and Girls Clubs of Metropolitan Phoenix, September 8, 2017
Featured Speaker, Boys and Girls Clubs of Tucson, August 9, 2017
Featured Speaker, Tucson Young Professionals Conference, April 1, 2017
Featured Speaker, The Gregory School STEM Night, March, 9, 2017

Guest Speaker, La Posada Forum, Green Valley, AZ – February 10, 2017
 Panelist, Phoenix FanFest, October 22, 2016
 Featured Speaker, UA College of Science Brunch, Cape Canaveral, FL – September 8, 2016
 Featured Speaker, Arizona NOW Campaign, Cape Canaveral, FL – September 7, 2016
 Keynote Speaker, UA Alumni Foundation Colorado Cats Event – April 28, 2016
 Panelist, Inside NASA, Phoenix Comicon – May 30, 2015
 Guest Speaker, Missions/Operations Seminar Series, LPL – April 17, 2015
 Panelist, Life in the Universe Panel Discussion, KUAT Radio – March 13, 2015
 Featured Speaker, Arizona NOW Campaign, Indian Wells, CA – February 12, 2015
 Guest Speaker, Charter 100 Women’s Leadership Group – February 10, 2015
 Guest Speaker, International Meteorite Collectors Association – February 4, 2015
 STEM Advisory Panel, Boys and Girls Clubs of Tucson, 2014
 Keynote Speaker, UA Honors College Recruitment Dinner, April 11, 2014
 Guest Speaker, The WISEGUISE Lunch Group, March 28, 2014
 Guest Speaker, The Learning Curve Group, February 10, 2014
 Guest Speaker, Stanford University Alumni Group, January 19, 2014
 Volunteer, Boys and Girls Clubs of Tucson – 2013 – 2014
 Featured Speaker, University of Arizona President’s Distinguished Speaker Series – Washington DC – February 7, 2013
 Featured Speaker, UA Homecoming Luncheon, November 9, 2012
 Guest Speaker, Association of American Universities Data Exchange, March 12, 2012
 Guest Speaker, Tucson Festival Books – Science Café, March 11, 2012
 Guest Speaker, Arizona Engineer’s Week Banquet, February 21, 2012
 Guest Speaker, UA Science Café – Saddlebrooke, February 16, 2012
 Guest Speaker, Science Downtown Sunday Lecture Series, February 12, 2012
 Guest Speaker, Steward Observatory Public Evening Lecture Series, January 30, 2012
 Guest Speaker, Biosphere 2, December 3, 2011
 Guest Speaker, Good Morning Tucson!, Tucson Chamber of Commerce, May 7, 2010.
 Event Organizer and Lecturer, Arizona Meteorite Exhibition, LPL Public Outreach Program, January 30, 2010. (available as a PodCast at <http://itunes.arizona.edu/>)
 Guest Lecturer, Arizona Senior Academy, August 31, 2009.
 Event Lecturer, The Science and Exploration of Near-Earth Asteroids, LPL Public Outreach Program, November 18, 2008. (available as a PodCast at <http://itunes.arizona.edu/>)
 Guest Lecturer, Hubble Space Telescope “Exploring Light” Teacher Workshop, July 9, 2007.
 Guest Lecturer, Santa Catalina Retirement Village, June 28, 2006.
 Guest Lecturer, Huachuca Mineral Club, Sierra Vista, AZ, May 17, 2006.
 Event Organizer and Lecturer, Meteorites: Unlocking the Mysteries, LPL Public Outreach Program (2005)
 Guest Lecturer, Tucson Gem and Mineral Society, October 3, 2005
 Event Supervisor, Dynamic Planet, Science Olympiad State Tournament (2004)
 Science Advisor, Safford Middle School Science Olympiad Team (2003)
 Guest Lecturer, Old Pueblo Rotary Club, June 16, 2002
 Participant, U of A Scientist-Teacher Alliance Program (2001-2002)

Recipient, Lunar and Planetary Institute Scientist-Teacher Cooperation Grant (2002)
Guest Lecturer, Kiwanis Club of Sunshine, April 2, 2002
Guest Lecturer, Rotary Club of Tucson, February 26, 2002

OUTREACH – NATIONAL/INTERNATIONAL

Featured Speaker, Creative Destruction Lab, Fireside Chat, Toronto, ON – June 7, 2018
National Spokesperson, Boys and Girls Clubs of America Fundraising Campaign, 2018
Featured Speaker, International Asteroid Day, June 30, 2017
Briefing to United Launch Alliance – All-hands Meeting, September 27, 2016
Briefing to Senator Gary Peters (D-MI), January 23, 2016
Panelist, American Association of Universities – Council on Federal Relations, January 11, 2016
Briefing on Collaboration in Asteroid Exploration Outreach, Japanese Aerospace and Exploration Agency, July 7, 2015
Briefing to Congresswoman Martha McSally Staff, June 5, 2015
Panelist, Panel discussion on icy moons, water, and origins of the solar system, IC Ceres – May 9, 2015
Briefing to Senator John McCain (R-AZ), February 18, 2014
Briefing to Senator Jeff Flake (R-AZ), January 21, 2014
Featured Speaker, OSIRIS-REx, SpaceVision (2013)
Featured Speaker, OSIRIS-REx, Spacefest IV (2012)
Panel Moderator, Asteroid Exploration Panel, Spacefest IV (2012)
Award Committee, McKay Award for Best Student Presentation at MetSoc (2010, 2011)
Pellas-Ryder Award Committee of the Meteoritical Society (2010 – 2012)
Judge, Nininger Meteorite Award for Best Student Publication (1999, 2000)
Award Committee, Dwornik Planetary Geoscience Student Award (1999)

DEPARTMENTAL COMMITTEES

Science and Technical Oversight Committee, Kuiper Imaging Core Facility (2017 – present)
LPL Strategic Planning Committee (2016 – present)
LPL Faculty Recruitment and Search Committee (2002 – 2005, 2008 – 2014, 2017 – present, Chair)
NASA Arizona Space Grant Steering Committee (2003 – present)
LPL Promotion and Tenure Committee (2012 – 2014, 2016 – 2017)
LPL Pre-tenure Teaching Advising and Review Committee (2011 – 2014)
LPL Curriculum Committee, (2010 – 2014), Chair (2010)
LPL Graduate Student Awards Committee, (2009 – 2011), Chair (2009 – 2010)
LPL Graduate Admissions and Advising Committee (2002 – 2008)

UNIVERSITY COMMITTEES

UA Committee on Academic Freedom and Tenure (2013 – 2016; 2017 – present)
UA Grievance Clearinghouse Committee (2017 – present)
UA Institutional Chemical Safety Committee (2004 – 2007)
Executive Committee, UA Institute for the Study of Planet Earth (2001 – 2006)

EXTRAMURAL – COMMITTEES

NASA Cosmochemistry Management and Operations Working Group (2007 – 2015)
NRC Committee on the Origin and Evolution of Life (2009 – 2011)
Publication Committee of the Meteoritical Society (2005 – 2010)
NASA Meteorite Working Group (2005 – 2008)
Organizing Committee, 70th Annual Meeting of the Meteoritical Society (2003 – 2007)
Program Committee, 31st Lunar and Planetary Science Conference (2000)
Program Committee, 30th Lunar and Planetary Science Conference (1999)

EXTRAMURAL - REVIEW PANELS

NASA Astrobiology: Science and Technology for Instrument Development (2008, 2009)
NASA Discovery and Scout Mission Capability Enhancement Program (2008)
NASA Stardust Sample Analysis Program (2007)
NASA Cosmochemistry Program (2001, 2004, 2005)
NASA Astrobiology: Exobiology and Evolutionary Biology Program (2003, 2004)
NASA Origins of Solar Systems Program (2002)

EXTRAMURAL – SESSIONS CHAIRED

44th Lunar and Planetary Science Conference (2018)
American Astronautical Society – Guidance, Navigation, and Control Conference (2016)
NASA PI Master’s Forum (2010)
Goldschmidt Geochemistry Conference (2010)
Annual Meeting of the AAPG (2009)
70th Annual Meeting of the Meteoritical Society (2007)
38th Lunar and Planetary Science Conference (2007)
37th Lunar and Planetary Science Conference (2006)
36th Lunar and Planetary Science Conference (2005)
34th Lunar and Planetary Science Conference (2003)
33rd Lunar and Planetary Science Conference (2002)
32nd Lunar and Planetary Science Conference (2001)
63rd Annual Meeting of the Meteoritical Society (2000)
31st Lunar and Planetary Science Conference (2000)
30th Lunar and Planetary Science Conference (1999)
Workshop on Parent-body and Nebular Modification of Chondritic Materials (1997)

EXTRAMURAL – OTHER

Peer Reviewer, Cambridge University Press
Lifeboat Foundation Science Advisory Board (2017 – present)
Science Advisory Board – Planetary Resources (2015 – present)
National Chair – American Astronautical Society – Guidance, Navigation, and Control Conference (2016)
Guest Editor, *Annual Reviews of Astronomy and Astrophysics*, Volume 56 (2018)
Co-Investigator – JAXA Hayabusa2 Asteroid Sample Return Mission
On-Air Talent – Arizona Public Media Fundraiser
External Evaluator – MacArthur Fellows Program
Peer Reviewer: Shota Rustaveli National Science Foundation of Georgia

Guest Editor, *Elements* – Special Issue on Cosmochemistry, Volume 7, Number 1, February 2011

NASA Peer Reviewer: Cosmochemistry, Origins of Solar Systems, Astrobiology: Exobiology and Evolutionary Biology, Astrobiology: Science and Technology Instrument Development, Interdisciplinary Exploration Science, Stardust Sample Analysis Program, Laboratory Analysis of Returned Samples

Peer Reviewer: European Research Council Executive Agency

Peer Reviewer: NSF: OCE International Support

Peer Reviewer: The UK's Strategic Science Investment Agency, Particle Physics and Astronomy Research Council (PPARC)

Peer Reviewer: The Leverhulme Trust, London, UK

Journal Peer Reviewer: Science, Meteoritics and Planetary Science, *Geochimica et Cosmochimica Acta*, Earth and Planetary Science Letters, American Mineralogist, Journal of Atmospheric and Solar-Terrestrial Physics, Fuel, Science, Nature

Phoenix Mars Lander TEGA Preliminary Design Review Team (2004)

Meteorite Hunter, Antarctic Search for Meteorites (2002-2003)

TEACHING & EDUCATIONAL ACTIVITIES

COURSES TAUGHT

S02 NATS 102: The Universe and Humanity, 3 credit hours, 160 students

F02 PTYS 510: Principles of Cosmochemistry, 3 credit hours, 12 students

S03 PTYS 195A: First Year Colloquium: Meteorites, 1 credit hour, 15 students

S03 PTYS 900: Team X – Spacecraft Mission Design, 3 credit hours, 9 students

F03 NATS 102: The Universe and Humanity, 3 credit hours, 160 students

S04 NATS 102: The Universe and Humanity, 3 credit hours, 72 students

F04 PTYS 510: Principles of Cosmochemistry, 3 credit hours, 18 students

F04 PTYS 195A: Asteroids, Comets, and Meteorites, 1 credit hour, 20 students

S05 PTYS 499/699: Team X – Spacecraft Mission Design, 3 credit hours, 8 students

F05 NATS 102: The Universe and Humanity, 3 credit hours, 160 students

S06 NATS 102: The Universe and Humanity, 3 credit hours, 86 students

F06 PTYS 510: Principles of Cosmochemistry, 3 credit hours, 14 students

S08 PHYS 498: Senior Capstone, 3 credit hours, 1 student

F08 PTYS 510: Principles of Cosmochemistry, 3 credit hours, 12 students

S09 PTYS 195A: Asteroids, Comets, and Meteorites, 1 credit hour, 20 students

F09 PTYS 407: Chemistry of the Solar System, 3 credit hours, 16 students

S17 PTYS 495/595: Special Topics – Spacecraft Mission Design and Implementation, 19 students

F17 PTYS 499/499H: Independent Study – Star and Planet Formation – 6 students

F18 HNRS 499H: Independent Study – Gameful Learning and Community Outreach

CURRENT STAFF SCIENTISTS

Heather Enos (OSIRIS-REx Deputy PI)

Christian d'Aubigny (OSIRIS-REx Camera Suite Deputy Instrument Scientist)

Carl Hergenrother (OSIRIS-REx Asteroid Astronomy Lead)

Dolores Hill (Meteorite Collection Manager)

Daniella Della-Giustina (OSIRIS-REx Image Processing Lead)

Bashar Rizk (OSIRIS-REx Camera Suite Instrument Scientist)

CURRENT POSTDOCTORAL RESEARCH ASSOCIATES

None at present

CURRENT PH.D. STUDENTS

Theodore Kareta (Ph.D.)

FORMER POSTDOCTORAL RESEARCH ASSOCIATES

Eric Palmer (Ph.D. 2009 – University of Arizona)

Jemma Davidson (Ph.D. 2009 – Open University)

FORMER PH.D. STUDENTS

Fred Ciesla (Ph.D. 2003)

Matthew Pasek (Ph.D. 2006)

Jade Bond (Ph.D. 2008)

Eric Palmer (Ph.D. 2009)

Eve Berger (Ph.D. 2011)

Kathryn Gardner-Vandy (Ph.D., 2012)

Devin Schrader (Ph.D., 2012)

Kelly Miller (Ph.D., 2016)

FORMER M.S. STUDENTS

Celinda Marsh (M.S. 2007)

UNDERGRADUATE RESEARCH INTERNS

Frances McQueen (2002 – 2003)

Virginia Smith (2003 – 2004)

Alyssa La Blue (2003 – 2005)

Daniella DellaGiustina (2004 – 2009)

Devin Schrader (2005 – 2007)

Matthew Rodriguez (2006 – 2007)

Adria Brooks (2006 – 2008)

Courtney King (2008 – 2011)

Katrina Jackson (2008 – 2011)

Lujhendra Ohja (2009 – 2011)

Rachel Maxwell (2010 – 2011)

Jennifer Sterchio (2010 – 2011)

Ashley Nied (2015 – 2018)

Katherina Marchese (2016 – present)

Jessica Forelli (2017 – present)

Collin Lewin (2017 – present)

Lindsey Koelbel (2018 – present)

Kerst Kingsbury (2018 – present)

Kana Ishimaru (2018 – summer intern from University of Tokyo)

PROFESSIONAL SOCIETIES

The Meteoritical Society, Fellow
The Geochemical Society
American Geophysical Union
American Association for the Advancement of Science

GRANTS AND CONTRACTS – CURRENT

OSIRIS-REx Asteroid Sample Return Mission PI and Science Support – Phase-B/C/D/E

Role: Principal Investigator
Total Award: \$ 79.785M
Award Period: 12/16/2011 – 10/31/2023
Source: MSFC New Frontiers Program Office – Contract NNM10AA11C
Annual Commitment (person months): 7

Application of Machine-learning Algorithms for On-board Asteroid Shape Model Determination and Spacecraft Navigation

Role: Principal Investigator
Total Award: \$397,700.00
Award Period: 01/15/2018 – 01/14/2020
Source: NASA NNH17ZOA001N-17STP_E1
Annual Commitment (person months): 1

Comet Astrobiology Exploration Sample Return (CAESAR)

Role: Co-Investigator
Total Award: \$38K
Award Period: 01/15/2018 – 06/01/2019
Source: NASA NNH16ZDA011O: New Frontiers 4, subcontract from Cornell University
Annual Commitment (person months): 1

GRANTS AND CONTRACTS – PENDING

Comet Astrobiology Exploration Sample Return (CAESAR)

Role: Mission Sample Scientist/SPOC Science Team Interface
Total Award: \$TBD
Award Period: 06/01/2019 – 12/31/2024 (TBD)
Source: NASA NNH16ZDA011O: New Frontiers 4, subcontract from Cornell University
Annual Commitment (person months): 9

GRANTS AND CONTRACTS – PREVIOUS

TEM studies on returned samples from Asteroid Itokawa and Comet 81P/Wild2: Implications for the weathering of airless bodies and insights into solar-system building blocks

Role: Co-Investigator
Total Award:
Award Period: 01/02/2015 – 01/01/2018
Solicitation: NNH14ZDA001N-LARS: Laboratory Analysis of Returned Samples
Commitment (person months): 0.5

Cosmochemistry of Siderophile and Chalcophile Elements in Chondritic Meteorites

Role: Principal Investigator

Total Award: \$360K
Award Period: 04/01/2011 – 03/31/2016
Source: NASA – ROSES 2009: Cosmochemistry
Commitment (person months): 1

Development of Simultaneous LIBS and LA-ICP-MS Analysis of Extraterrestrial Samples

Role: Principal Investigator
Total Award: \$320,000
Award Period: 04/01/2010 – 03/31/2012
Source: NASA – ROSES 2009: Laboratory Analysis of Returned Samples
Commitment (person months): 1

Following the Biogenic Elements in the CR Chondrites: An NAI Consortium Study

Role: Principal Investigator
Total Award: \$138,279
Award Period: 01/01/2010 – 1/31/2012
Source: NASA Astrobiology Institute
Commitment (person months): 1

The Formation and Evolution of Metals and Sulfides in the Solar Nebula and Asteroid Interiors

Role: Principal Investigator
Total Award: \$150,000
Award Period: 03/01/2010 - 02/28/2012
Source: NASA – ROSES 2009: Cosmochemistry
Commitment (person months): 1

Melting of Oxidized Asteroids

Role: Graduate Supervisor for Kathryn Gardner
Total Award: \$90,000
Award Period: 09/01/2009 – 08/31/2012
Source: NASA Earth and Space Science Fellowship/09
Commitment (person months): N/A (graduate fellowship application)

Hydrothermal Alteration of Asteroids and Comets

Role: Graduate Supervisor for Eve Berger
Total Award: \$90,000
Award Period: 09/01/2008 – 08/31/2011
Source: NASA Earth and Space Science Fellowship/08
Commitment (person months): N/A (graduate fellowship application)

OSIRIS-REx Asteroid Sample Return Mission – Phase-B Bridge

Role: Deputy Principal Investigator
Total Award: ~\$7.87M (\$2.34M direct to UA)
Award Period: 07/15/2011 - 12/15/2011
Source: NNH09ZDA007O: New Frontiers Announcement of Opportunity 2009
Commitment (person months): 3.5

A Comprehensive Survey of Sulfides in Stardust: Unraveling Nebular and Parent Body Processes Recorded in Cometary Minerals

Role: Principal Investigator
Total Award: \$225,000
Award Period: 08/01/2009 – 07/31/2012
Source: NASA – ROSES 2008: Sample Return Lab Instruments and Data Analysis
Commitment (person months): 1

OSIRIS-REx Asteroid Sample Return Mission – Phase A

Role: Deputy Principal Investigator
Total Award: \$3,300,000 (\$900,000 direct to UA)
Award Period: 04/01/2010 - 07/15/2011
Source: NNH09ZDA0070: New Frontiers Announcement of Opportunity 2009
Commitment (person months): 6

Experimental Studies of Cometary Sublimation

Role: Principal Investigator
Total Award: \$159,300
Award Period: 04/01/2007 – 03/31/2011
Source: NASA – ROSES 2006: Outer Planets Research
Commitment (person months): 1

Acquisition of a Laser Ablation Unit for the Lunar and Planetary Laboratory ICP-MS Facility

Role: Principal Investigator
Total Award: \$90,090
Award Period: 04/01/2009 – 03/31/2010
Source: NASA – ROSES 2008: Planetary Major Equipment
Commitment (person months): N/A (instrument acquisition proposal)

Experimental and Analytical Constraints on Chemical Processes in the Early Solar System

Role: Principal Investigator
Total Award: \$342,000
Award Period: 05/01/2007 - 04/30/2010
Source: NASA – ROSES 2006: Cosmochemistry
Commitment (person months): 2

Cubanite and Associated Sulfides in Stardust: Indicators of the Thermal and Aqueous History of Comet Wild-2

Role: Principal Investigator
Total Award: \$39,500
Award Period: 03/01/2008 – 02/28/2009
Source: NASA – ROSES 2007: Discovery Data Analysis Program
Commitment (person months): 1

Asteroid Sample Return Target Selection

Role: Principal Investigator
Total Award: \$90,728
Award Period: 05/01/2008 – 11/30/2008
Source: NASA Goddard Space Flight Center
Commitment (person months): 1

OSIRIS – Asteroid Sample Return Mission Phase A Concept Study

Role: Deputy Principal Investigator
Total Award: \$1,200,000
Award Period: 11/20/2006 – 9/30/2007
Source: NASA – Discovery Program 2006

Experimental and Analytical Constraints on Chemical Processes in the Early Solar System

Role: Principal Investigator
Total Award: \$199,000
Award Period: 03/01/2004 - 02/28/2007
Source: NASA – ROSS 2003: Cosmochemistry

Meteoritic Phosphorus and the Formation of Organophosphorus Compounds

Role: Student Mentor
Total Award: \$72,000
Award Period: 08/01/2004 – 07/31/2007
Source: NASA Graduate Student Research Program, Fellowship for M. Pasek

Phosphorus Chemistry in the Early Solar System

Role: Principal Investigator
Total Award: \$203,305
Award Period: 05/01/2003 – 04/30/2006
Source: NASA – ROSS 2002: Astrobiology: Exobiology and Evolutionary Biology

Development of High-resolution Inductively Coupled Plasma Mass Spectrometry Techniques for Analysis of Volatile Trace Elements in Small Samples

Role: Principal Investigator
Total Award: \$449,435
Award Period: 01/01/2003 – 12/31/2005
Source: NASA – ROSS 2002: Sample Return Laboratory Instruments and Data Analysis Program

Discovery Proposal Development Support

Role: Principal Investigator
Total Award: \$62,230
Award Period: 04/15/2004 – 08/13/2004
Source: Lockheed Martin Space Systems

Acquisition of a High-Resolution Inductively Coupled Plasma Mass Spectrometer for Cosmochemical and Geochemical Research

Role: Principal Investigator
Total Award: \$120,415
Award Period: 01/01/2003 – 12/31/2003
Source: NASA – ROSS 2002: Cosmochemistry/Planetary Major Equipment

SCHOLARLY PRESENTATIONS – INVITED TALKS

“OSIRIS-REx and The Xtronaut: Live Space Exploration Through Board Games”, Yale Quantum Institute, March 29, 2018

“Sample Analysis Needs for the OSIRIS-REx Mission”, NRC Committee on Extraterrestrial Sample Analysis Facilities, November 20, 2017

“EXPLORING THE UNIVERSE: Science and Humanities United”, University of Arizona, College of Humanities Alumni of the Year Ceremony, October 27, 2017

“OSIRIS-REx: Launch and Outbound Cruise Activities”, Asteroids, Comets, and Meteors Conference, Montevideo, Uruguay, April 10-14, 2017

“NASA’s Discovery & New Frontiers Program – New Missions: OSIRIS-REx” – AAS Von Braun Symposium, March 29, 2016

“OSIRIS-REx: Overview of NASA's mission to another asteroid” – Misasa International Symposium 2015, March 6, 2015

“Planet Formation and the Origin of Life” – UA College of Science Lecture Series, February 2, 2015

“The OSIRIS-REx Asteroid Sample Return Mission” – Small Bodies Dynamics Workshop Ubatuba, Brazil August 24 – 28, 2014

“Integrated Science and Engineering for the OSIRIS-REx Mission” – Asteroids, Comets, and Meteors Conference, Helsinki, Finland, June 30 – July 4, 2014

“Cosmochemistry in Support of OSIRIS-REx” – Goldschmidt Conference, June 8 – 13, 2014

“OSIRIS-REx Overview” – 2nd Hayabusa2 Joint Science Team Meeting – September 18, 2013

“Asteroids Coming to Earth” – NASA Headquarters – April 30, 2013

“Will Asteroids End the World?” – TEDx Tucson – February 26, 2013

“The OSIRIS-REx Mission – Sample Acquisition Strategy and Evidence for the Nature of Regolith on Asteroid 101955 (1999 RQ₃₆)”, Asteroids, Comets, and Meteors Conference, Niigata, Japan. May 16 – 20, 2012

“OSIRIS-REx – Exploration of Asteroid (101955) 1999 RQ₃₆”, AGU Fall Meeting 2011, San Francisco, CA, December 5-9, 2011

“The OSIRIS-REx Asteroid Sample Return Mission” International Primitive Body Exploration Working Group (IPEWG), Pasadena, CA, August 22-24, 2011

“Volatile Delivery from Carbonaceous Asteroids”. Workshop on the Delivery of Volatiles & Organics - From Earth to Exo-Earths with JWST. September 13-15, 2010, Space Telescope Science Institute, Baltimore, Maryland.

“Oxygen Fugacity Variations Within and Among Meteorite Parent Bodies” Workshop on Oxygen in Asteroids and Meteorites. June 2–3, 2005, Flagstaff, Arizona.

”Origin of Water by Inward Migration of Phyllosilicates on Hydrous Asteroids” The 15th Annual Goldschmidt Conference. May 20 – 25, Moscow, Idaho.

“Chemistry in Accretion Disks” 2003 Gordon Research Conference on the Origins of Solar Systems, July 6-11, 2003, Roger Williams University, Bristol, RI.

“Phosphorus Chemistry in the Early Solar System” Exobiology Principal Investigators' Seventh Triennial Science Conference, August 25-29, 2003, NASA Ames Research Center.

SCHOLARLY PRESENTATIONS - COLLOQUIA

University of British Columbia, Vancouver, BC, January 4, 2018

University of Central Florida, Orlando, FL, June 1, 2017

Marshall Space Flight Center, Planetary Missions Program Office, October 28, 2015

Johns Hopkins University – Applied Physics Lab, October 22, 2015

University of Colorado – Boulder – LASP, September 20, 2013
Southwest Research Institute – Boulder, September 19, 2013
National Academy of Engineering Regional Meeting, May 20, 2013
NASA Headquarters Office of the Chief Technologist, May 14, 2013
Carnegie Institute of Science, May 14, 2013
White House Office of Science and Technology Policy Brown Bag, March 25, 2013
House of Representatives Committee on Science, Space, and Technology, March 25, 2013
Ithaca College, Department of Physics Colloquium, September 13, 2012
National Research Council Committee on Astrobiology and Planetary Science, May 25, 2012
NASA Headquarters Science Mission Directorate Brown Bag Luncheon, May 24, 2012
University of Tennessee, Knoxville, Earth and Planetary Sciences Colloquium, Feb. 11, 2010.
Arizona State University, Astronomy Seminar, February 9, 2009.
Planetary Science Institute, Colloquium, January 31, 2007.
Planetary Science Institute, Colloquium, May 18, 2005.
University of California-Los Angeles, Earth and Space Sciences Colloquium, May 10, 2005
University of Chicago, Geophysical Sciences Colloquium, May 6, 2005
American Museum of Natural History, Earth and Planetary Sciences Colloquium, Oct. 18, 2002.
Rutgers University, Geology Colloquium, October 16, 2002.
California Institute of Technology, Planetary Science Seminar, April 16, 2002.
University of Arizona, Geosciences Colloquium, March 28, 2002.
Washington University, Earth and Planetary Sciences Colloquium, December 7, 2000.
University of Michigan, Geosciences Colloquium, July 12, 2000.

PUBLICATIONS – BOOKS AND GAMES

2017:

Constellations: The Game of Stargazing and the Night Sky. Xtronaut Enterprises.

2016:

Xtronaut: The Game of Solar System Exploration. Xtronaut Enterprises.

2011:

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