

MARIA T. ZUBER

Research Interests

Theoretical modeling of geophysical processes; analysis of altimetry, gravity and tectonics to determine the structure and dynamics of the Earth and solid planets; development and implementation of spacecraft laser and radio tracking experiments.

Education

Ph.D. Geophysics, Brown University, 1986.

Ph.D. Thesis: Unstable Deformation in Layered Media: Application to Planetary Lithospheres

Thesis Advisor: E.M. Parmentier

Sc.M. Geophysics, Brown University, 1983.

B.A. Astronomy (honors) and Geology, University of Pennsylvania, 1980.

Senior Thesis: Velocity-Inclination Correlations in Galactic Clusters

Employment

Vice President for Research, Massachusetts Institute of Technology, 2013-Present.

E.A. Griswold Professor of Geophysics, Massachusetts Institute of Technology, 1998-Present.

Head of the Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology, 2003-2011.

Consultant, Aerospace Division, MIT Lincoln Laboratory, 2002-2015.

Professor of Geophysics and Planetary Science, Massachusetts Institute of Technology, 1995-1998.

Professor of Geophysics, Johns Hopkins University, 1995.

Senior Research Scientist, Laboratory for Terrestrial Physics, NASA/Goddard Space Flight Center, 1994-2010.

Second Decade Society Associate Professor of Geophysics, Johns Hopkins University, 1993-1995.

Adjunct Research Scientist, Geodynamics Branch, NASA/Goddard Space Flight Center, 1993.

Associate Research Professor of Geophysics, Department of Earth and Planetary Sciences, Johns Hopkins University, 1991-1992.

Geophysicist, Geodynamics Branch, NASA/Goddard Space Flight Center, 1986-1992.

National Research Council Research Associate, Geodynamics Branch, NASA/Goddard Space Flight Center, 1985-1986.

Research Assistant, Department of Geological Sciences, Brown University, 1980-1985.

Visiting Appointments

Guest Investigator, Woods Hole Oceanographic Institution, Summers, 1996-2010.

Visiting Scholar, Department of Earth and Planetary Sciences, and Senior Science Fellow, Radcliffe Institute for Advanced Study, Harvard University, 2002-2003.

Visiting Assistant Professor of Geophysics, Department of Earth and Planetary Sciences, Johns Hopkins University, 1990.

Honors and Awards

Eugene Shoemaker Distinguished Scientist Medal, NASA Solar System Exploration Virtual Institute, 2017.
Honorary Fellowship in Geophysics, Royal Astronomical Society, 2017.
MIT Lincoln Laboratory Facilities Modernization Plan Team Award, 2016.
Best Referee Award, *Nature* Publishing Group, 2015.
MIT Freshman Advising Student Champion Award, 2015.
Elected Member, Johns Hopkins Society of Scholars, 2015.
Buzz Aldrin Space Exploration Award, The Explorers Club, 2014.
NASA Group Achievement Award for the Dawn Science Team, 2013.
NASA Group Achievement Award for the Lunar Reconnaissance Orbiter-Laser Ranger Optical Communication Experiment, 2013.
National Space Society, Space Pioneer Award in Science and Engineering, GRAIL Team, 2013.
MIT James R. Killian, Jr. Faculty Achievement Award, 2012-2013.
International Academy of Astronautics Laurel for Team Achievement to MESSENGER Team, 2012.
American Geophysical Union Harry H. Hess Medal, 2012.
NASA Outstanding Public Leadership Medal, 2012.
NASA Group Achievement Award for the GRAIL Science Team, 2012.
NASA Group Achievement Award for the GRAIL Project Office Team, 2012.
NASA Group Achievement Award for the GRAIL Mission Formulation Team, 2012.
NASA Group Achievement Award for the Lunar Reconnaissance Orbiter Team, 2010.
NASA Group Achievement Award for the Lunar Reconnaissance Orbiter Laser Ranging Team, 2009.
U.S. News & World Report/Harvard Kennedy School Center for Public Leadership List of America's Best Leaders, 2008.
Doctor of Science, *Honoris Causa*, Brown University, 2008.
Fellow, Geological Society of America, 2008.
Fellow, American Association for the Advancement of Science, 2007.
American Astronautical Society/Planetary Society Carl Sagan Memorial Award, 2007.
Geological Society of America G.K. Gilbert Award, 2007.
NASA Goddard Space Flight Center Outstanding Teamwork Award for the Earth-Mars Laser Ranging Experiment, 2006.
Brown University Horace Mann Medal, 2005.
NASA Group Achievement Award for the Jupiter Icy Moons Orbiter Science Definition Team, 2005.
Member, American Philosophical Society, 2005.
NASA Group Achievement Award for the Mercury Laser Altimeter Instrument Team, 2004.
NASA Distinguished Public Service Medal, 2004.
Member, National Academy of Sciences, 2004.
Fellow, American Academy of Arts and Sciences, 2004.
NASA Group Achievement Award for the Mars Global Surveyor Project Science Team, 2003.
List of 50 Most Important Women in Science, *Discover Magazine*, November, 2002.
Scientific Achievement Award, American Institute of Aeronautics and Astronautics, New England Section, 2002.
NASA Group Achievement Award for the Near Earth Asteroid Rendezvous Shoemaker Mission Team, 2002.
Fellow, American Geophysical Union, 2001.
NASA Group Achievement Award for the Mars Program Independent Assessment Team, 2000.
NASA Group Achievement Award for the Mars Global Surveyor Science Team, 2000.
Asteroid 6635 Zuber, discovered by Carolyn and Eugene Shoemaker at Palomar Observatory, 1987; approved by the IAU, 1998.
NASA Group Achievement Award for the Near Earth Asteroid Rendezvous spacecraft encounter of Asteroid 253 Mathilde, 1998.
NASA Exceptional Scientific Achievement Medal, 1995.
Johns Hopkins University David S. Olton Award for Outstanding Contributions to Undergraduate Student Research, 1995.

NASA Group Achievement Award for the Deep Space Program Science Experiment Lunar Orbit Mission Operations Support Team, 1994.
Johns Hopkins University Oraculum Award for Excellence in Undergraduate Teaching, 1994.
Johns Hopkins University Second Decade Society Faculty Development Chair, 1993-1995.
NASA Group Achievement Award for the Mars Observer Payload Development Team, 1993.
NASA Group Achievement Award for the Mars Observer Laser Altimeter Project, 1991.
NASA Outstanding Performance Award, 1988, 1989, 1990, 1991, 1992.
NASA Peer Award, 1988.
Sigma Xi, 1983, 1985.

Spacecraft Mission Involvement

Gravity Investigation Lead & Co-investigator, NASA Psyche Mission, 2016-Present.
Principal Investigator, NASA Gravity Recovery and Interior Laboratory (GRAIL) Mission, 2008-Present.
Investigation Lead, Laser Ranger, NASA Lunar Reconnaissance Orbiter Mission, 2006-2016.
Deputy Principal Investigator, Lunar Orbiter Laser Altimeter, NASA Lunar Reconnaissance Orbiter Mission, 2004-Present.
Co-investigator, NASA Dawn Mission to Vesta and Ceres, 2001-Present.
Team Leader, Radio Science Gravity Investigation, Mars Reconnaissance Orbiter Mission, 2001-Present.
Co-investigator & Lead of the Geophysics Investigation, NASA MESSENGER Mission to Mercury, 1999-2016.
Team Leader, Laser Ranging Investigation, NASA Near Earth Asteroid Rendezvous Mission, 1994-2001.
Deputy Principal Investigator, Mars Orbiter Laser Altimeter, Mars Global Surveyor Mission, 1994-2007.
Gravity and Altimetry Team, Ballistic Missile Defense Organization/NASA Clementine Mission, 1993-1995.
Co-investigator, Mars Observer Laser Altimeter, 1990-1993.

Selected Lectureships/Panels

Invited Speaker, Jim Watson's 90th Birthday Symposium, Cold Spring Harbor Laboratory, NY, April 2018.
Keynote Speaker, Holy See Seminar on Exploration and Development of Space Opportunities and Issues in the Context of the Sustainable Development Goals, Castel Gandolfo, Italy, March 2018.
Fireside Chat, w/Rusty Justice, Co-founder of BitSource, a software development company in Eastern Kentucky that employs re-trained coal miners, MIT CSAIL-Sloan Symposium on *AI and the Future of Work*, Cambridge, MA, November 2017.
Keynote Speaker, Golden Goose Awards Ceremony, Kennedy Caucus Room, Russell Senate Office Building, Washington, DC, September 2017.
Conversation on "Defying Faith" (w/Father Eric Salobir, Jonathan Zittrain), MIT Media Lab *Defiance* Conference, Cambridge, MA, July, 2017.
Maurice and Yetta Glicksman Forum, Brown University, Providence, RI, May 2017.
Keynote Address, Council on Government Relations, Washington, DC, February 2017.
CERAWeek Panel on Climate and Energy Strategies Post-Paris (w/Carlos Pasqual, Mohammed Jameel Al Ramahi, Rachel Kyte, Laurence Tubiana), Houston, 2017.
Keynote Speaker, 31st International Union of Geodesy and Geophysics Conference on Mathematical Geophysics, Paris, 2016.
Keynote Speaker, UNAVCO Science Workshop, Broomfield, CO, 2016.
COP21, Panel on "Sustainable Cities and Green Buildings", Paris, 2015.
Distinguished Lecture in Planetary Science, Asia-Oceania Geosciences Society, Singapore, 2015.
Center for American Progress, Panel on "Human Exploration of Space, Looking Back 50 Years, Getting Ready for the Next 50 (w/Rudy deLeon, Deborah Lee James, Wes Bush, Peter Juul), Washington, DC, 2015.
Commencement Speaker, University of Pennsylvania College of Arts and Sciences, Philadelphia, PA, 2015.

US Naval Academy Leadership Conference, *Leading in an Interconnected World*, Panel on “The Conscientious Leader: Operating within the Realm of Perception”, Annapolis, MD, 2015.

Thomas A. Mutch Lecture, Department of Earth, Environmental and Planetary Sciences, Brown University, Providence, RI, 2014.

Fifth Annual Public Lecture, Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA) Northwestern University, Evanston, IL, 2014.

Robert M. Walker Distinguished Lecture, McDonnell Center for the Space Sciences, Washington University, St. Louis, MO, 2012.

William H. Pickering Lecture, American Institute of Aeronautics and Astronautics, Pasadena, CA, 2012.

[Neekeyfar Lecture](#) in Science and Mathematics for Undergraduates, [Harvard University](#), Cambridge, MA, 2012.

Tommy Gold Lecturer, Department of Astronomy, Cornell University, Ithaca, NY, 2012.

School of Earth Sciences Distinguished Speaker, Stanford University, 2012.

Distinctive Voices Lecturer, National Academy of Sciences, Woods Hole, MA, 2010.

Welsh Lecturer, Department of Physics, University of Toronto, Toronto, Ontario, 2010.

Women in Science and Engineering System Transformation (WISEST) Visiting Scholar, University of Illinois-Chicago, Chicago, Ill, 2010.

Keynote Speaker, *Giant Leaps* 40th Anniversary of Apollo Symposium, Cambridge, MA, 2009.

Krumbein Lecturer, University of Chicago & Northwestern University, Chicago, IL, 2009.

StatoilHydro Plenary Lecture, International Geological Congress, Oslo, 2008.

Distinguished Lecturer, National Space Science and Technology Center, NASA/Marshall Space Flight Center & University of Alabama, Huntsville, AL, 2008.

Centennial Lecturer, School of Science, Purdue University, West Lafayette, IN, 2008.

Plenary Speaker, 50th Anniversary of Sputnik Celebration, Russian Academy of Sciences, Moscow, 2007.

Crafoord Jubilee Plenary Lecturer, Royal Swedish Academy of Sciences, Lund, 2007.

Special Lecture, Kuwait Foundation for the Advancement of Sciences, Kuwait City, 2007.

Carnegie Evening Lecturer, Carnegie Institution of Washington, Washington, DC, 2004.

Pappalardo Distinguished Lecturer, MIT Department of Physics, Cambridge, MA, 2004.

Niels Bohr Lecture in Physics, Niels Bohr Institute, University of Copenhagen, 2003.

Speaker, Crafoord Prize Symposium, Royal Swedish Academy of Sciences, Stockholm, 2002.

Academic Master, Chien-Shiung Wu Education Foundation Science Camp, National Central University, Republic of Taiwan, 2002.

Sverdrup Visiting Scholar, Department of Physics, Augsburg College, Minneapolis, MN, 2002.

Plenary Speaker, MIT Technology Day, Cambridge, MA, 2001.

Inaugural Carl Sagan Lecture, American Geophysical Union, San Francisco, CA, 2000.

Distinguished Leaders in Science Lecture, National Academy of Sciences, Washington, DC, 1999.

Harold S. Masursky Lecture, Twenty-fourth Lunar and Planetary Science Conference, Houston, TX, 1993.

Professional Societies

American Geophysical Union -- Fellow
American Association for the Advancement of Science -- Fellow
American Astronomical Society, Division for Planetary Sciences
American Astronautical Society
The Explorers Club – Fellow National
Geological Society of America – Fellow
Royal Astronomical Society – Honorary Fellow in Geophysics

Professional Involvement

Chair, Jet Propulsion Laboratory Advisory Council, 2017-Present; Member, 2000-2016.
Selection Committee, MIT Media Lab Disobedience Award, 2017.

International Advisory Council, Saudi Aramco EXPEC ARC, 2017-Present.
Chair, National Science Board, 2016-Present; Member, 2013-2016.
Selection Committee, American Association for the Advancement of Science Newcomb Cleveland Prize, 2016.
Science Advisory Board, Gordon and Betty Moore Foundation, 2016-Present.
Chair, National Academy of Sciences Nominating Committee, 2016.
Advisor, NASA/WGBH Bringing the Universe to America's Classrooms Initiative, 2016-2017.
NASA Europa Gravity Study Group, 2015-2016.
Planning Committee, Association of American Universities Senior Research Officers Meeting, 2016; 2018.
Participant, National Academy of Sciences -- Annenberg Retreat at Sunnylands Working Group on Scientific Integrity, February, 2015.
Executive Committee, Center for Integration of Medicine and Innovative Technology (CIMIT), 2013-2015.
Co-convener, Session on "Spaceborne Remote Sensing of Gravity: GRACE, GRAIL, GOCE, GRACE-FO, and Beyond", American Geophysical Union Fall Meeting, San Francisco, CA, 2014.
Chair, External Review Committee, Harvard University Center for the Environment, 2013.
Alliance Board of Directors, National Renewable Energy Laboratory, 2013-Present.
Co-convener, Session on "Spaceborne Remote Sensing of Gravity: GRACE, GRAIL and GOCE", American Geophysical Union Fall Meeting, San Francisco, CA, 2013.
Visiting Committee, Radcliffe Institute for Advanced Study, Harvard University, 2013.
Member, National Research Council Governing Board, 2013-2015.
Executive Committee and Board of Directors, Massachusetts Green High Performance Computing Center, 2013-Present.
Co-convener, Session on "GRAIL Explores the Moon's Interior", Lunar and Planetary Science Conference XLIV, Houston, TX, 2013.
Council of the National Academy of Sciences, 2012-2015.
Co-convener, Session on "Initial Results of the GRAIL Mission", American Geophysical Union Fall Meeting, San Francisco, CA, 2012.
Co-chair, MIT Execution Planning Committee on the Environment, 2012.
Chair, Faculty Search Committee on Space, MIT-Skolkovo Initiative, 2012.
Scientific Organizing Committee, BepiColombo-MESSENGER Joint Workshop on the Internal Constitution of Mercury, 2012.
Member, President's Council of Advisors on Science and Technology (PCAST) Study on the Future of the U.S. Science and Technology Enterprise, 2011-2012.
Member, Draper Laboratory Space Systems Review Board, 2011.
Co-chair, MIT Center for Global Change Science Advisory Board, 2011-2013.
Co-organizer, Exploration Symposium, celebrating MIT's 150th Anniversary, 2011.
Scientific Organizing Committee, Brown-Vernadsky Microsymposium, The Woodlands, TX, March 2011, 2012, 2013, 2014, 2015.
Member, Advisory Board, Search for MIT Dean of Engineering, 2010.
Scientific Organizing Committee, Fifth International Conference on Mars Polar Science and Exploration, Fairbanks, AK, 2011.
Organizing Committee, Climate and Economics Symposium, Radcliffe Institute for Advanced Study, Harvard University, 2010-2011.
Member, NASA OSIRIS-REX Red Team Review, NASA New Frontiers Program, 2010.
Co-convener, MIT Gulf of Mexico Oil Spill Forum, 2010.
Member, Advisory Board, Search for MIT Dean of Graduate Studies, 2010.
Member, MIT Energy and Environment Advisory Board, 2010-2012.
Member, NASA/Artemis Mission Senior Review, 2010.
Scientific Organizing Committee, NASA Lunar Science Institute Symposium, 2010.
Co-convener, MIT Climategate Forum, 2009.
Chair, Committee on the Recruitment and Professional Development of Women, King Abdullah University of Science and Technology, Saudi Arabia, 2009-2011.
Board of Fellows, Brown University Corporation, 2009-Present.
MIT News Office Advisory Group, 2009-2011.

Co-chair, Research Working Group, MIT Institute-wide Planning Task Force, 2009-2011.
Co-convenor, MIT Women in Aerospace Symposium, 2009, 2010, 2011.
National Academy of Sciences J. Lawrence Smith Medal Selection Committee, 2005, 2008.
Co-convenor, Union Session on "MESSENGER at Mercury: The Second Flyby", American Geophysical Union Fall Meeting, San Francisco, CA, 2008.
Program Committee, MIT Darwin Bicentennial Conference, 2008-2009.
Co-convenor, Session on "Mars Exploration", 37th Scientific Assembly, COmmittee on SPACe Research (COSPAR), Montreal, Canada, 2008.
Co-convenor, Session on "Lunar Science and Exploration", Asia Oceania Geosciences Society (AOGS) Meeting, Busan, Korea, 2008.
Advisory Board, Kuwait-MIT Center for Natural Resources and the Environment, 2007-Present.
External Advisory Board, Brown University ADVANCE Program, 2007-2009.
Advisory Panel, *Minding the Gap* study on women in science at NASA, 2007.
Chair, MIT Environmental Assessment Committee, 2007.
Co-convenor, National Academy of Sciences Sackler Colloquium on "Evolution and Exploration of Solar Systems", January 5-6, 2007.
External Reviewer, University of Colorado Laboratory for Atmospheric and Space Science, 2006.
American Geophysical Union Fellows Committee, 2006-2010.
Chair, Advisory Committee on the Lincoln Laboratory Director Search, 2006.
National Academy of Sciences Committee on Women in Academic Science and Engineering, 2005-2006.
Screening Committee, Lemelson-MIT Prize, 2005-2006.
National Academy of Sciences Earth Science and Applications from Space Panel on Solid Earth Hazards, Resources and Dynamics, 2005-2007.
Co-chair, NASA Science Instruments and Sensor Capability Roadmap Team, 2004-2005.
President's Commission on Implementation of United States Space Exploration Policy, 2004.
JPL Cassini Orbit Insertion Review Board, 2004.
Mars Exploration Rover Independent Status Review Board, 2003-2004.
Visiting Committee, Radcliffe Institute for Advanced Study, Harvard University, 2003-2009.
Review Board, NASA Mars Exploration Rover, Landing Site Selection Review, 2003.
NASA Jupiter Icy Moons Orbiter Science Definition Team, 2003-2004.
Review Board, Mars Gravity Biosatellite Mission Concept Preliminary Design Review, 2003.
Chair, Planetary Sciences Section Nominating Committee, American Geophysical Union, 2003.
Chair, American Geophysical Union Honors and Recognition Committee, 2002-2004.
Prize Committee, Division of Planetary Sciences of the American Astronomical Society, 2001-2004.
Visiting Committee, Jet Propulsion Laboratory, 2000-2004.
Board of Reviewing Editors, *Science*, 2000-Present.
Board of Directors, The Planetary Society, 2000-2004.
Mars Program Independent Assessment Team, 2000.
American Geophysical Union Edward A. Flinn Medal Selection Committee, 1996-1998; 2000-2002.
Co-convenor, Session on "NEAR at Eros: Latest Results from Low-Altitude Orbits", American Geophysical Union Fall Meeting, December, 2000.
NASA Space Science Advisory Committee, 1999-2002.
Chair, American Geophysical Union Audit and Legal Affairs Committee, 1998-2000; Member, 1996-2000.
President, Planetary Sciences Section, American Geophysical Union, 1998-2000; President-elect, 1996-1998.
Judge, Siemens-Westinghouse Science and Technology Competition, 1999.
Co-convenor, Session on "Highlights of Planetary Exploration", American Geophysical Union Spring Meeting, May, 1999.
Co-convenor, Session on "Results of Mars Global Surveyor Elliptical Orbit Mapping", American Geophysical Union Spring Meeting, May, 1998.
NASA Europa Orbiter Science Definition Team, 1997-1999.
Local Organizing Committee, AAS Division for Planetary Sciences Meeting, Cambridge, 1997.
Chair, American Geophysical Union Best Student Paper Award in Planetary Sciences Selection Committee, Fall Meeting, 1996; Spring Meeting, 1997.

Co-author, National Academy of Sciences/NASA "Nature of Origins" Report, 1996.
 Chair, American Geophysical Union, *Eos* Editor Search Committee, 1997.
 Co-Convener, Session on "A Tribute to S.K. Runcorn", American Geophysical Union Fall Meeting, San Francisco, December, 1996.
 NASA Europa Orbiter Study Team, 1996.
 NASA Mars Exploration Working Group, 1996-1997.
 National Academy of Sciences Committee on Earth Gravity from Space, 1996-1997.
 Co-Convener, Session on "Deformation of Thick Lithospheres on Earth and Venus", Western Pacific Geophysics Meeting, Brisbane, Australia, July, 1996.
 Guest Editor, *Odyssey Magazine*, "Mapping the Planets" issue, November, 1995.
 Chair, NASA/Mars Surveyor 1998 Lander Science Payload Selection Panel, 1995.
 NASA/Near Earth Asteroid Rendezvous Mission Science Data Center Review Board, 1995.
 Chair, NASA/Mars Global Surveyor Mission Geodesy and Geophysics Working Group, 1995-1996.
 Space Studies Board Review Committee on the NASA Space Science Research and Analysis Program, 1994.
 National Academy of Sciences Committee on Planetary and Lunar Exploration, 1994-1996.
 Chair, Mars Observer Geodesy and Geophysics Working Group, 1993.
 NASA Planetary Geology and Geophysics Program Review Panel, 1993-1995.
 NASA Mars Science Working Group, 1993-1996.
 NASA Planetary Geology and Geophysics Management and Operations Working Group, 1993-1995.
 American Geophysical Union Bucher Medal Selection Committee, 1992-1995.
 NASA Venus Data Analysis Program Review Panel, 1992.
 Tectonophysics Section Nominating Committee, American Geophysical Union, 1991.
 NASA Dynamics of the Solid Earth Program Review Panel, 1991.
 NASA Planetary Geology Speakers' Bureau, 1991-1992.
 Editor, *Planetary Geosciences* – 1988; 1989-90.
 NASA Solid Earth Science Coolfont Report Panel, 1989.
 Program Committee, Geological Society of America Annual Meeting, 1989.
 Associate Editor, *Journal of Geophysical Research*, 1989-1992.
 Consultant, NASA Education Office National High School Mission to Mars Course, 1988-1992.
 Associate Editor, *Geophysical Research Letters*, 1988-1991.
 NASA Planetary Geology and Geophysics Working Group, 1987-1990.
 Planetology Program Committee, American Geophysical Union Spring Meeting, 1985.

Congressional Testimonies

Subcommittee on Research and Technology, Committee on Science, Space and Technology of the U.S. House of Representatives, "National Science Foundation Part II: Future Opportunities and Challenges for Science", with Joan Ferrini-Mundy, Jeffrey Spies and Keith Yamamoto, March 21, 2017.
 Committee on Science, Space and Technology of the U.S. House of Representatives, Testimony on Lessons for Future Human Spaceflight from the Robotic Exploration Program, Hearing on "Human Spaceflight Past, Present and Future", with Neil Armstrong, Eugene Cernan and Michael Griffin, September 22, 2011.
 Democratic Steering and Policy Committee of the U.S. House of Representatives, Testimony on The Role of Science as an Economic Stimulus and Key to U.S. Competitiveness, Hearing on "The Need for an Economic Recovery Package", with Norman Augustine, Martin Feldstein, Robert Reich and Mark Zandi, January 7, 2009.
 Committee on Science and Technology of the U.S. House of Representatives, Testimony on Achievements by NASA in Space Science, Earth Science and Education, Hearing on "NASA at 50 – Past Accomplishments and Future Opportunities and Challenges", with Norman Augustine, John Glenn and Stephen Hawking, July 30, 2008.

Op-eds

“Falling Short on Science”, *New York Times*, January 26, 2018.

“Neglecting Research Today Threatens U.S. Innovation Tomorrow”, with Rush Holt, *The Hill*, February 22, 2017.

“How to Declare War on Coal’s Emissions Without Declaring War on Coal Communities”, *The Washington Post*, February 4, 2017.

“Congressional Leadership and Vision Propels U.S. Leadership in Science”, *The Hill*, January 17, 2017.

Engineering Certifications (for those who think I have no practical skills)

- Laser Safety
- Clean Room Procedures
- Electrostatic Discharge Control

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Refereed Publications

- Carr, C.E., N.C. Bryan, K. Saboda, S.A. Bhattaru, G. Ruvkun and M.T. Zuber, Acceleration profiles and processing methods for parabolic flight, submitted to *Nature Micrograv.*, 2018.
- Evans, A.J., J.C. Andrews-Hanna, J.W. Head III, J.M. Soderblom, S.C. Solomon and M.T. Zuber, Re-examination of early lunar chronology with GRAIL data: Terranes, basins, and impact fluxes, submitted to *J. Geophys. Res. Planets*, 2018.
- Ding, M., Soderblom, J.M., C.J. Bierson, F. Nimmo, C. Milbury and M.T. Zuber, Constraints on crustal porosity from the gravitational signature of impact craters, submitted to *Geophys. Res. Lett.*, 2018.
- Mojarro, A., J. Hatchey, G. Ruvkun, M.T. Zuber and C.E. Carr, CarrierSeq: A sequence analysis workflow for low-input nanopore sequencing, *bioRxiv*, <https://doi.org/10.1101/175281>, submitted to *BMC Bioinform.*, 2018.
- Barker, M.K., X. Sun, D. Mao, E. Mazarico, G.A. Neumann, M.T. Zuber, D.E. Smith, J.F. McGarry and E.D. Hoffman, In-flight characterization of the Lunar Orbiter Laser Altimeter instrument pointing and far-field pattern, submitted to *Appl. Optics*, 2018.
- Ding, M., J. Lin, M.T. Zuber and C. Gu, Constraints on Martian lithospheric strength from localized gravity/topography admittance and correlation analysis, submitted to *J. Geophys. Res. Planets.*, 2018.
- Smith, D.E., M.T. Zuber, E. Mazarico, A. Genova, G.A. Neumann, X. Sun, M.H. Torrence and D. Mao, Trilogy, a planetary geodesy mission concept for measuring the expansion of the solar system, *Planet. Space Sci.*, in press, 2018.
- Sori, M.M., P.B. James, B.C. Johnson, J.M. Soderblom, S.C. Solomon, M.A. Wieczorek and M.T. Zuber, Isostasy and implications for mantle structure on the Moon, *J. Geophys. Res. Planets*, in press, 2018.
- Andrews-Hanna, J.C., W.S. Kiefer, G.A. Neumann, M.A. Wieczorek and M.T. Zuber, Ring faults and ring dikes around the Orientale basin on the Moon, *Icarus*, in press, 2018.
- Genova, A., E. Mazarico, S. Goossens, F.G. Lemoine, G.A. Neumann, D.E. Smith and M.T. Zuber, Solar system expansion and strong equivalence principle as seen by the NASA MESSENGER mission, *Nature Comm.*, *9*, doi: 10.1038/s41467-02558-1, 2018.
- Ermakov, A.I., R.R. Fu, J.C. Castillo-Rogez, C.A. Raymond, R.S. Park, F. Preusker, C.T. Russell, D.E. Smith and M.T. Zuber, Constraints on Ceres' internal structure and evolution from its shape and gravity measured by the Dawn spacecraft, *J. Geophys. Res. Planets*, doi: 10.1002/2017JE005302, 2017.
- Pontefract, A., T.F. Zhu, V.K. Walker, H. Hepburn, C. Lui, M.T. Zuber, G. Ruvkun and C.E. Carr, Microbial diversity in a hypersaline sulfidic lake: A terrestrial analog of ancient Mars, *Front. Microbiol.*, *26*, doi: 10.3389/fmicb.2017.01819, 2017.
- Mazarico, E., G.A. Neumann, M.K. Barker, S. Goossens, D.E. Smith and M.T. Zuber, Orbit determination of the Lunar Reconnaissance Orbiter: Status after seven years, *Planet. Space Sci.*, doi: 10.1016/j.pss.2017.10.004, 2017.
- Mojarro A., G. Ruvkun, M.T. Zuber and C.E. Carr, Nucleic acid extraction from synthetic Mars analog soils for *in situ* life detection, *Astrobiology*, *17*, 747-760, doi: 10.1089/ast.2016.1535, 2017.

- Smith, D.E. and M.T. Zuber, The transfer of Earth-time to the planets, 20 pp., *The Science of Time, Astrophysics and Space Science Proceedings* 50, pp. 319-328, doi: 10.1007/978-3-319-59909-0_35, ed. E.F. Arias, L. Cornbrinck, P. Gabor, C. Hohenkerk & P.K. Seidelmann, 5-9 June 2016, Cambridge, MA, 2017.
- Konopliv, A.S., R.S. Park, A.T. Vaughan, B.G. Bills, S.W. Asmar, A.I. Ermakov, N. Rambaux, C.A. Raymond, J.C. Castillo-Rogez, C.T. Russell, D.E. Smith and M.T. Zuber, The Ceres gravity field spin pole, rotation period and orbit from the Dawn radiometric tracking and optical data, *Icarus*, 299, 411-429, doi: 10.1016/j.icarus.2017.08.005, 2017.
- Corley, L.M., P.J. McGovern, G.Y. Kramer, M. Lemelin, D. Trang, J.J. Gillis-Davis, G. J. Taylor, K.E. Powell, W. S. Kiefer, M. Wieczorek and M.T. Zuber, Olivine-bearing lithologies on the Moon: Constraints on origins and transport mechanisms from M³ spectroscopy, radiative transfer modeling, and GRAIL crustal thickness, *Icarus*, 300, 287-304, doi: 10.1016/j.icarus.2017.09.012, 2018.
- Fu, R.R., A.I. Ermakov, S. Marchi, J.C. Castillo-Rogez, C.A. Raymond, B.H. Hager, M.T. Zuber, S.D. King, M.T. Bland, M.C. De Sanctis, F. Preusker, R.S. Park, C.T. Russell, The interior structure of Ceres as revealed by surface topography, *Earth Planet. Sci. Lett.*, 476, 153-164, doi: 10.1016/j.epsl.2017.07.053, 2017.
- Fisher, E.A., P.G. Lucey, M. Lemelin, B.T. Greenhagen, M.A. Siegler, E. Mazarico, O. Aharonson, J.-P. Williams, P.O. Hayne, G.A. Neumann, D. Paige, D.E. Smith and M.T. Zuber, Evidence for surface water ice in the lunar polar regions using reflectance measurements from the Lunar Orbiter Laser Altimeter and temperature measurements from the Diviner Lunar Radiometer Experiment, *Icarus*, 292, doi: 10.1016/j.icarus.2017.03.023, 2017.
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