SARAH T. STEWART

Department of Earth and Planetary Sciences
One Shields Avenue
University of California
Davis, CA 95616 U.S.A.

sts@ucdavis.edu
530.754.6021
sarahtstewart.net
orcid.org/0000-0001-9606-1593

EDUCATION

Ph.D., Planetary Sciences, minor in Astrophysics, California Institute of Technology, Pasadena, CA 2002
A.B., Astronomy & Astrophysics and Physics cum laude, Harvard University, Cambridge, MA 1995

PROFESSIONAL EXPERIENCE

Professor, U. California, Davis 2014-present
Visiting Professor, Harvard University 2014-2016
Professor of Earth and Planetary Sciences, Harvard University 2012-2014
John L. Loeb Associate Professor of the Natural Sciences, Harvard University 2009-2012
Assistant Professor of Planetary Science, Harvard University 2003-2009
G. K. Gilbert Postdoctoral Fellow, Carnegie Institution of Washington, Washington, D.C. 2002-2003

RESEARCH INTERESTS

Planet formation and evolution with focus on collisional processes. Laboratory measurements of the equation of state and rheological properties of planetary materials using shock wave techniques. Computational and laboratory technique development for study of shock processes. Shock processes in heterogeneous materials. Experimental and computational studies of impact processes to interpret the formation, resurfacing history, physical properties, and internal structure of planets and small bodies.

ACADEMIC HONORS

Stephen E. Dwornik Planetary Geoscience Student Paper Award, Geological Society of America (2001)
Grove Karl Gilbert Postdoctoral Fellowship, Carnegie Institution of Washington (2002)
Presidential Early Career Award for Scientists and Engineers (2003)
Harold C. Urey Prize, Division for Planetary Sciences, American Astronomical Society (2009)
Inaugural Thomas J. and Earleen Ahrens Lecturer, California Institute of Technology (2014)
MacArthur Fellow (2018)
Fellow, American Association for the Advancement of Science (2019)

MEDIA RECOGNITION

Brilliant 10, Popular Science (2010)
Astronomy's Rising Stars, Astronomy Magazine (2013)
Top 100 Science Stories of 2015, Discover Magazine (2015)
Featured on TED.com, go.ted.com/sarahtstewart (2019)

ACADEMIC SERVICE AND CONSULTING

Selected Academic Service Appointments

GSA Barringer Award Selection Committee, 2019-2022
President, Planetary Sciences Section of the American Geophysical Union, 2016-2018, Past-President 2019-2020
American Physical Society Topical Group on Shock Compression of Condensed Matter, Fellows Committee, 2016-present
President-elect, Planetary Sciences Section of the American Geophysical Union, 2015
Associate Editor, J. Geophysical Research Planets, 2011-2014

National Committees and Panels

Controlling Material Response Panel, The Future of Compression Science, Los Alamos National Laboratory, 2009

A Summary Report on the 21st Century Needs and Challenges of Compression Science Workshop, Los Alamos National Laboratory Technical Report LA-UR 09-07771, pp. 42, 2009

Mitigation Panel, Committee to Review Near-Earth Object Surveys and Hazard Mitigation Strategies, National Research Council, 2009

Defending Planet Earth: Near-Earth Object Surveys and Hazard Mitigation Strategies, National Academy of Sciences, pp. 149, 2010

Materials in Extremes and Planetary Physics Panel, Basic Research Directions Workshop on User Science at the National Ignition Facility (NIF), Department of Energy, 2011

Basic Research Directions for User Science at the National Ignition Facility, Eds. J. Sarrao, K. Budil, M. Wiescher, NNSA-DOE, pp. 141, 2011

National Ignition Facility, Technical Review Committee, 2015-present, Chair 2017-present

Standing Committee on Astrobiology and Planetary Science, National Academies of Sciences, Engineering and Medicine, 2016-2017

Selected Education and Public Outreach

Essential Science for Teachers: Earth and Space video series, Annenberg/CPB, Producer Shannon Densmore, Executive Producer Alex Griswold, Science Media Group, Center for Astrophysics: Science advisor and interviewee, 2003-2004

Harvard Museum of Natural History: Science advisor for new meteorites exhibit; PI on E/PO video display, *Impact! The making of a meteorite,* 2005-2008

Sacco, J. C., S. T. Stewart, A. Griswold, Z. M. Leinhardt, IMPACT! An Asteroid's Journey to Earth – Interactive Visualizations for Museums and Classrooms, *Lunar & Planetary Science Conference* 39, #2487, 2008.

NOVA *Finding Life Beyond Earth*, interviewee, 2011

Current Science magazine, careers profile, 2011

Popular Science magazine, Labs that go Boom, 2012

Astro Confidential, 2012

Space's Deepest Secrets Episode *Dark Origins of the Moon*, interviewee, 2018

Volcanoes 3D: The Fires of Creation, IMAX feature, consultant, 2018

How the Universe Works, Season 8, interviewee, 2019

Origin Story by S. J. Lock and S. T. Stewart, *Scientific American*, July 2019

U. California Davis Committees

College of Letters & Science, Reorganization Committee, 2014-2015

College of Letters & Science, Visioning Committee, 2015-2016

Physics Department, Astrophysics Faculty Search, 2015-2016

Earth and Planetary Sciences, Earth and Planetary Materials Faculty Search, 2015-2016

MPS Division Machine Shops Committee, 2016-2017

College of Letters & Science Recruitment Advisory Committee for Associate Deans 2019

UC Davis Committee on Planning and Budget, 2019-present

College of Letters & Science, Dean's Prize for Distinguished Contribution, 2019-2020

Harvard University Committees

Faculty of Arts and Sciences, Science Education Committee, 2006-2007

Earth and Planetary Sciences, Undergraduate Studies, 2003-2013, co-Director, 2010-2014

Earth and Planetary Sciences, Daly Postdoctoral Fellowship, 2003-2006

Earth and Planetary Sciences, Faculty Search Committees, 2004-2009

Earth and Planetary Sciences, Collections Committee, 2009-2010

Professional Memberships

American Geophysical Union

American Astronomical Society, Division for Planetary Sciences

American Physical Society, topical group on Shock Compression of Condensed Matter
American Association for the Advancement of Science (fellow)
Meteoritical Society
International Astronomical Union

PAST AND PRESENT RESEARCH PROGRAMS

Mapping water on Mars using fluidized crater morphologies: A new physical approach
P.I., NASA Mars Data Analysis Program, 2003-2006

Experimental Investigation of Martian Impact Processes
P.I., NASA Mars Fundamental Research Program, 2003-2006

Experimental Investigation of Porosity and Volatility in Impact Processes
P.I., NASA Planetary Geology and Geophysics Program, 2004-2006

Alteration of Composition and Structure in Cometesimals during Collisional Evolution
P.I., NASA Outer Planets Research Program, 2005-2007

Collaborative Study of Lonar Crater, India
P.I., NASA Mars Fundamental Research Program, 2005-2006

Experimental Investigation of Planetary Impact Processes: Porosity and Post-Shock Temperatures
P.I., NASA Planetary Geology and Geophysics Program, 2006-2011

Shock and magnetism: Experiments to bridge the nanoscale to the planetary scale
P.I., NASA Mars Fundamental Research Program, 2007-2009

Catastrophic Disruption of Small Bodies in the Outer Solar System
P.I., NASA Outer Planets Research Program, 2009-2012

Magnetism of extraterrestrial materials – an integrated study
Collaborator (P.I. J. Gattacceca, CEREGE), International Project for Scientific Cooperation, CNRS, 2010-2012

Shock Response of Dry and Water-Saturated Soils
P.I., Army Research Office, 2010-2013

Static and shock pressure treatment of synthetic Mars basalts: Implications for understanding the evolution of crustal magnetic anomalies
Co-I (P.I. S. Brachfeld, Montclair State), NASA Mars Fundamental Research Program, 2011-2014

Testing the Borealis Impact Hypothesis: An investigation of mantle and crustal signatures from a giant impact
P.I., NASA Mars Fundamental Research Program, 2011-2014

Giant impacts on terrestrial planets: A high-resolution 3D study of magma ocean formation and atmospheric blowoff
P.I., NASA Origins of Solar Systems Program, 2011-2014

Mobilization of water during planetary collisions: Shock thermodynamics experiments on icy mixtures and hydrated minerals
P.I., NASA Planetary Geology and Geophysics Program, 2011-2015

Investigating martian impact processes and crustal magnetic properties with multiple datasets
Co-I (P.I. R. Lillis, U.C. Berkeley), NASA Mars Data Analysis Program, 2011-2014

Dynamic High-Pressure Behavior of Hierarchical Heterogeneous Geological Materials
Co-I (P.I. N. Thadhani, GA Tech) Air Force Physics of Heterogeneous Materials, 2012-2015

Analytic models for outcomes of collisions between icy bodies
P.I., NASA Outer Planets Research Program, 2012-2015

From Z to Planets
Co-I (P.I. S. Jacobsen, Harvard), DOE/NNSA High Energy Density Laboratory Plasmas, 2012-2015

Shock-induced Melting and Vaporization Experiments on Planetary Materials
P.I., NASA Solar System Workings Program, 2015-2019

From Z to Planets: Phase II
Co-I (P.I. S. Jacobsen, Harvard), DOE/NNSA High Energy Density Laboratory Plasmas, 2015-2018

Multi-Programmatic Research with High Energy Density (HED) Science
P.I., Lawrence Livermore National Laboratory, 2016-2018

Center for Frontiers in High Energy Density Physics
Co-P.I. (P.I. F. Beg, UC San Diego), UC Office of the President, 2017-2020

Center for Matter under Extreme Conditions
Co-P.I. (P.I. F. Beg, UC San Diego), DOE Stewardship Science Academic Alliance, 2018-2023
Origin and Cycles of Life-Essential Ingredients in Young Rocky Planets
Co-I (P.I. R. Dasgupta, Rice University), NASA NExSS Team, 2018-2023
Impact-Driven Chemistry and its Role in the Surface Environment of the Early Earth
P.I., Simons Collaboration on the Origins of Life, 2018-2021
From Z to Planets: Phase III
Co-I (P.I. S. Jacobsen, Harvard), DOE/NNSA Stewardship Science Academic Alliances, 2019-2022
Center for Matter at Atomic Pressures
Co-P.I. (P.I. G. Collins, U. Rochester), NSF Physics Frontiers Center, 2020-2025
The Thermodynamics of Building Earth-like Planets
P.I., NASA Emerging Worlds, 2021-2023

PAST AND PRESENT FACILITY TIME AND DEVELOPMENT PROGRAMS

40-mm Impact Research System for Harvard's Shock Compression Laboratory
P.I., NASA Planetary Major Equipment Program, 2003
Dynamic Compression Sector at the Advanced Photon Source
Team member (P.I. Y. Gupta, WSU), Facility Development Proposal, Argonne National Laboratory, 2009
Investigation of Phase Transitions on Release from Shock in H_2O and SiO_2
P.I., LLNL Jupiter Laser Facility, 2010
Large volume sample recovery at NIF: Concept Development
P.I., National Ignition Facility, Lawrence Livermore National Laboratory, 2011-2012
Formation and evolution of Earth and Earth-like planets: Fundamental planetary material property experiments on Z
Co-P.I. (Co-P.I. S. Jacobsen, Harvard), Sandia Z Accelerator Fundamental Science Experiments, 2012-2016
Instability Growth in Materials with Strength: Viscosity, growth rates, and shock recovery validation experiments
P.I., LLNL Jupiter Laser Facility, 2012
The Chemical Origins of the Earth and Moon: Investigating Shock-Induced Fe Redox States
P.I., LLNL Jupiter Laser Facility, 2014
Quantifying Vaporization and Melting during Planetary Formation
P.I., LLNL Jupiter Laser Facility, 2015
The Iron Melting Curve and the Magnetospheres of Habitable Super-Earths
Co-I. (P.I. R. Hemley, CIW), NIF Discovery Science Program, 2015 and 2016
A 2-stage Light Gas Gun for the Shock Compression Laboratory at UC Davis
P.I., NASA Planetary Major Equipment Program, 2015
Formation and evolution of Earth and Earth-like planets: Fundamental planetary material property experiments on Z – Phase II
Co-P.I. (Co-P.I. S. Jacobsen, Harvard), Sandia Z Accelerator Fundamental Science Experiments, 2016-2017
Formation and evolution of Earth and SuperEarth-like planets: Fundamental planetary material property experiments on Z – Phase III
Co-P.I. (Co-P.I. S. Jacobsen, Harvard), Sandia Z Accelerator Fundamental Science Experiments, 2018-2019
Investigating giant impacts between rocky planets with high-pressure melting and shock equation of state measurements on complex silicates
Co-I. (Co-P.I. D. Fratanduono, M. Millot, LLNL), U. Rochester Omega EP Experiments, 2019, 2020

ADVISING AND MENTORING

Graduate students
K. L. Louzada (2003-2009, PhD) – "The effects of impact cratering on planetary crustal magnetism"
L. E. Senft (2004-2009, PhD) – "The effect of target properties on impact cratering"

R. A. Marcus (2008-2011, PhD) – "The Role of Giant Impacts in Planet Formation and Internal Structure" (co-advised with L. Hernquist and D. Sasselov)
R. G. Kraus (2008-2013, PhD) – "On the Thermodynamics of Planetary Impact Events"
W. M. Steinhardt (2011-2013) – Shock physics and high-pressure experiments
S. J. Lock (2012-2018, PhD) – "The formation, structure and evolution of terrestrial planets"
E. Davies (2014-2020, PhD) – "Thermodynamics of Planet Forming Impacts"
G. Hollyday (2016-2020, MS) – Interactive learning about planet formation https://synestia.info
K. Amodeo (2017+) – Impact processes
M. Harwell (2020+) – Impact processes

Postdoctoral associates

Z. M. Leinhardt (2005-2007) – Collisional modification of small bodies
M. Ćuk (2008-2012, Daly-Clay Fellow) – Solar system dynamics; history of Earth-moon system
G. Sarid (2012-2014) – Collisional and thermal evolution of icy bodies
D. Spaulding (2012-2015, Origins Fellow) – Shock processes on volatile and organic materials
P. Carter (2017+) – Planet formation, collisional processes
B. Chidester (2018+) – Planetary material properties, planet formation
M. Duncan (2018-2019) – Planetary material properties, planet formation
R. Citron (2020-) – Planetary impact processes and planetary geophysics

Undergraduate theses

B. A. Black (2004-2005): Looking Beneath the Surface: Measurements of Impact Crater Geometries Provide Evidence for Ice-Rich Deposits at Low Latitudes on Mars (Hoopes Prize winner; published in *J. Geophysical Research – Planets*)
F. M. McEachern (2008-2009): Dynamical Evolution of the Hungaria Asteroids (Hoopes Prize winner; published in *Icarus*)
M. Newman (2012-2013): Heating System for Emissivity Measurements (B.S. in Engineering Sciences)

Harvard College Program for Research in Science and Engineering (PRISE)

2007: Andrea Peterson, Firth McEachern
2008: Sonya Mollinger, Peter Hedman
2010: Matthew Newman

Harvard Board of Freshman Advisors (2008-2011)

SELECTED INVITED PRESENTATIONS

41st Division for Planetary Sciences Meeting, 2009, Urey Prize Plenary lecture: *Impacts onto icy bodies: A journey from the laboratory to the outer solar system*

11th Hypervelocity Impact Symposium, 2010, Plenary lecture: *The role of phase changes on the thermodynamics and mechanics of impact cratering in H_2O ice*

Research at High Pressure, Gordon Research Conference, 2010, Invited lecture: *Planetary impact dynamics: The importance of phase changes on decompression*

17th American Physical Society Topical Conference on Shock Compression of Condensed Matter, 2011, Plenary lecture: *New Frontiers at the Intersection of Shock Physics and Planetary Sciences*

Origin of the Moon Conference, The Royal Society of London, 2013, Invited presentation: *A sequence of giant impacts leading to the origin of the Earth and Moon*

Science Research Lecture (public lecture series), Harvard University, 2013, *The Violent Origin of the Earth and Moon*

Thomas J. and Earleen Ahrens Lecture, California Institute of Technology, 2014, *The Origin of the Earth and Moon*

Physics of Exoplanets: From Earth-sized to Mini-Neptunes, Kavli Institute for Theoretical Physics Conference, 2015, Invited presentation: *Growing Planets by Giant Impacts: A Diversity of Outcomes*

5th International Conference on High Energy Density Physics, 2015, Invited presentation: *Transforming the Earth into a High Energy State: The Physics of Giant Impacts and Lunar Origin*

20th APS Topical Conference on Shock Compression of Condensed Matter, 2017, Invited presentation: *Shock-and-Release to the Liquid-Vapor Phase Boundary: Experiments and Applications to Planetary Science*

2018 Miller Institute Symposium, Invited presentation: *The Origin of the Earth and Moon*

2018 Kavli Institute for Theoretical Physics, Chalk Talk: *Earth's recovery from the Moon-forming giant impact*
2019 TED.com: *Where did the Moon come from? A new theory*
2019 Fall AGU Centennial Session Earth Interior: Accretion: *Expect more surprises during planet formation*
2020 Simons Foundation Lecture: *Traces of Catastrophe: how violent collisions shaped our habitable planet*

PUBLICATIONS – CHRONOLOGICAL BY ACCEPTANCE DATE

Student and postdoctoral advisees underlined.

1. Orton, G., J. L. Ortiz, K. Baines, G. Bjoraker, U. Carsenty, F. Colas, A. Dayal, D. Deming, P. Drossart, E. Frappa, J. Friedson, J. Goguen, W. Golisch, D. Griep, C. Hernandez, W. Hoffmann, D. Jennings, C. Kaminski, J. Kuhn, P. Laques, S. Limaye, H. Lin, J. Lecacheux, T. Martin, G. McCabe, T. Momary, D. Parker, R. Puetter, M. Ressler, G. Reyes, P. Sada, J. Spencer, J. Spitale, **S. Stewart**, J. Varsik, J. Warell, W. Wild, P. Yanamandra-Fisher, G. Fazio, J. Hora, L. Deutsch. Earth-based observations of the Galileo probe entry site. *Science* **272**, 839-840, doi:10.1126/science.272.5263.839, 1996.
2. Orton, G. S., B. M. Fisher, K. H. Baines, **S. T. Stewart**, A. J. Friedson, J. L. Ortiz, M. Marinova, M. Ressler, A. Dayal, W. Hoffmann, J. Hora, S. Hinkley, V. Krishnan, M. Masanovic, J. Tesic, A. Tziolas, K. C. Parija. Characteristics of the Galileo probe entry site from Earth-based remote sensing observations. *J. Geophysical Research: Planets* **103**, 22791-22814, doi:10.1029/98JE02380, 1998.
3. Ortiz, J. L., G. S. Orton, A. J. Friedson, **S. T. Stewart**, B. M. Fisher, J. R. Spencer. Evolution and persistence of 5-μm hot spots at the Galileo probe entry latitude. *J. Geophysical Research: Planets* **103**, 23051-23069, doi:10.1029/98JE00696, 1998.
4. **Stewart, S. T.**, T. J. Ahrens. Shock Wave Propagation in Porous Ice. In *Shock Compression of Condensed Matter-1999*, AIP Conference Proceedings **505**, pp.1243-1246. Eds. M.D. Furnish, L.C. Chhabildas, R.S. Hixon. American Institute of Physics, doi:10.1063/1.1303686, 2000.
5. O'Keefe, J. D., **S. T. Stewart**, M. E. Lainhart, T. J. Ahrens. Damage and rock-volatile mixture effects on impact crater formation. *International Journal of Impact Engineering* **26**, 543-553, doi:10.1016/S0734-743X(01)00112-9, 2001.
6. Weiss, B. P., D. L. Shuster, **S. T. Stewart**. Temperatures on Mars: $^{40}Ar/^{39}Ar$ Thermochronology of ALH84001. *Earth and Planetary Science Letters* **201**, 465-472, doi:10.1016/S0012-821X(02)00729-X, 2002.
7. Weiss, B. P., H. Vali, F. J. Baudenbacher, J. L. Kirschvink, **S. T. Stewart**, D. L. Shuster. Records of an ancient Martian magnetic field in ALH84001. *Earth and Planetary Science Letters* **201**, 449-464, doi:10.1016/S0012-821X(02)00728-8, 2002.
8. **Stewart, S. T.**, F. Nimmo. Surface runoff features on Mars: Testing the carbon dioxide formation hypothesis. *J. Geophysical Research: Planets* **107**, 5069, doi:10.1029/2000JE001465, 2002.
9. **Stewart, S. T.**, T. J. Ahrens. Shock Hugoniot of H_2O ice. *Geophysical Research Letters* **30**, 1332, doi:10.1029/2002GL016789, 2003.
10. **Stewart, S. T.**, T. J. Ahrens, J. D. O'Keefe. Impact-Induced Melting of Near-Surface Water Ice on Mars. In *Shock Compression of Condensed Matter-2003*, AIP Conference Proceedings **706**, pp. 1484-1487, Eds. M.D. Furnish, Y. M. Gupta, and J. W. Forbes, American Institute of Physics, doi:10.1063/1.1780519, 2004.
11. **Stewart, S. T.**, T. J. Ahrens. A New H_2O Ice Hugoniot: Implications for Planetary Impact Events. In *Shock Compression of Condensed Matter-2003,* AIP Conference Proceedings **706**, pp. 1478-1483, Eds. M.D. Furnish, Y. M. Gupta, and J. W. Forbes, American Institute of Physics, doi:10.1063/1.1780518, 2004.
12. **Stewart, S. T.**, T. J. Ahrens. Shock Properties of H_2O ice. *J. Geophysical Research: Planets* **110**, E03005, doi:10.1029/2004JE002305, 2005.
13. Yoshimura, Y., **S. T. Stewart**, M. Somayazulu, H.-K. Mao, R. J. Hemley. High-pressure x-ray diffraction and Raman spectroscopy of ice VIII. *J. Chemical Physics* **124**, 024502, doi:10.1063/1.2140277, 2006.
14. **Stewart, S. T.**, G. B. Kennedy, L. E. Senft, M. R. Furlanetto, A. W. Obst, J. R. Payton, A. Seifter. Post-Shock Temperature and Free Surface Velocity Measurements of Basalt. In *Shock Compression of Condensed Matter-2005*, AIP Conference Proceedings **845**, pp. 1484-1487, Eds. M. D. Furnish, M. Elert, T. P. Russell, C. T. White, American Institute of Physics, doi:10.1063/1.2263605, 2006.
15. Seifter, A., **S. T. Stewart**, M. R. Furlanetto, G. B. Kennedy, J. R. Payton, A. W. Obst. Post-Shock Temperature Measurements of Aluminum. In *Shock Compression of Condensed Matter-2005*, AIP Conference Proceedings **845**, pp. 139-142, Eds. M. D. Furnish, M. Elert, T. P. Russell, C. T. White, American Institute of Physics, doi:10.1063/1.2263284, 2006.
16. Louzada, K. L., **S. T. Stewart**, B. P. Weiss. Shock Demagnetization of Pyrrhotite ($Fe_{1-x}S$,$x<0.13$) and Implications for the Martian Crust and Meteorites. In *Shock Compression of Condensed Matter-2005*, AIP Conference Proceedings **845**, pp. 1476-1479, Eds. M. D. Furnish, M. Elert, T. P. Russell, C. T. White, American Institute of Physics, doi:10.1063/1.2263603, 2006.

17. **Stewart, S. T.**, G. J. Valiant. Martian subsurface properties and crater formation processes inferred from fresh impact crater geometries. *Meteoritics and Planetary Sciences* **41**, 1509-1537, doi:10.1111/j.1945-5100.2006.tb00433.x, 2006.
18. Louzada, K. L., **S. T. Stewart**, and B. P. Weiss. Effect of shock on the magnetic properties of pyrrhotite, the Martian crust, and meteorites. *Geophysical Research Letters* **34**, L05204, doi:10.1029/2006GL027685, 2007.
19. Yoshimura, Y., **S. T. Stewart**, H.-K. Mao, R. J. Hemley. *In situ* Raman spectroscopy of low-temperature/high-pressure transformations of H_2O. *J. Chemical Physics* **126**, 174505, doi:10.1063/1.2720830, 2007.
20. Senft, L. E., **S. T. Stewart**. Modeling Impact Cratering in Layered Surfaces. *J. Geophysical Research: Planets* **112**, E11002, doi:10.1029/2007JE002894, 2007.
21. Black, B. A., **S. T. Stewart**. Excess ejecta craters record episodic ice-rich layers at middle latitudes on Mars. *J. Geophysical Research: Planets* **113**, E02015, doi:10.1029/2007JE002888, 2008.
22. Halevy, I., **S. T. Stewart**. Is Enceladus' Plume Tidally Controlled? *Geophysical Research Letters* **35**, L12203, doi:10.1029/2008GL034349, 2008.
23. Louzada, K. L., B. P. Weiss, A. C. Maloof, **S. T. Stewart**, N. Swanson-Hysell, S. A. Soule. Paleomagnetism of Lonar Impact Crater, India. *Earth and Planetary Science Letters* **275**, 308-319, doi:10.1016/j.epsl.2008.08.025, 2008.
24. Senft, L. E., **S. T. Stewart**. Impact Crater Formation in Icy Layered Terrains on Mars. *Meteoritics and Planetary Science* **43**, 1993-2013, doi:10.1111/j.1945-5100.2008.tb00657.x, 2008.
25. Leinhardt, Z. M., **S. T. Stewart**. Full Numerical Simulations of Catastrophic Small Body Collisions. *Icarus* **199**, 542-559, doi:10.1016/j.icarus.2008.09.013, 2009.
26. **Stewart, S. T.**, A. Seifter, A. W. Obst. Shocked H_2O Ice: Thermal Emission Measurements and the Criteria for Phase Changes during Impact Events. *Geophysical Research Letters* **35**, L23203, doi:10.1029/2008GL035947, 2008.
27. Maloof, A. C., **S. T. Stewart**, B. P. Weiss, S. A. Soule, N. L. Swanson-Hysell, K. L. Louzada, I. Garrick-Bethell, P. M. Poussart. Geology of Lonar Crater, India. *Geological Society of America Bulletin* **122**, 109-126, doi:10.1130/B26474.1, 2010.
28. **Stewart, S. T.**, Z. M. Leinhardt. Velocity-dependent Catastrophic Disruption Criteria for Planetesimals. *Astrophysical Journal Letters* **691,** L133-L137, doi:10.1088/0004-637X/691/2/L133, 2009.
29. Marcus, R. A., **S. T. Stewart**, D. Sasselov, L. Hernquist. Collisional Stripping and Disruption of Super-Earths. *Astrophysical Journal Letters* **700**, L118-L122, doi:10.1088/0004-637X/700/2/L118, 2009.
30. Louzada, K. L., **S. T. Stewart**. Effects of Planet Curvature and Crust on the Shock Pressure Field around Impact Basins. *Geophysical Research Letters*, **36**, L15203, doi:10.1029/2009GL037869, 2009.
31. Senft, L. E., **S. T. Stewart**. Dynamic Fault Weakening and the Formation of Large Impact Craters. *Earth and Planetary Science Letters* **287**, 471-482, doi:10.1016/j.epsl.2009.08.033, 2009.
32. Kraus R. G., **S. T. Stewart**, A. Seifter, A. W. Obst. Shock and Post-Shock Temperatures in an Ice-Quartz Mixture: Implications for Melting During Planetary Impact Events. *Earth and Planetary Science Letters* **289**, 162-170, doi:10.1016/j.epsl.2009.11.002, 2010.
33. Louzada, K. L., **S. T. Stewart**, B. P. Weiss, J. Gattacceca, N. S. Bezaeva. Shock and static pressure demagnetization of pyrrhotite and implications for the Martian crust. *Earth and Planetary Science Letters* **290**, 90-101, doi:10.1016/j.epsl.2009.12.006, 2010.
34. Ćuk, M., B. J. Gladman, **S. T. Stewart**. Constraints on the Source of Lunar Cataclysm Impactors. *Icarus* **207**, 590-594, doi:10.1016/j.icarus.2009.12.013, 2010.
35. Marcus, R. A., D. Sasselov, L. Hernquist, **S. T. Stewart**. Minimum Radii of Super-Earths: Constraints from Giant Impacts. *The Astrophysical Journal Letters* **712**, L73-L76, doi:10.1088/2041-8205/712/1/L73, 2010.
36. Lillis, R. J., M. E. Purucker, J. S. Halekas, K. L. Louzada, **S. T. Stewart-Mukhopadhyay**, M. Manga, H. V. Frey. Study of impact demagnetization at Mars using Monte Carlo modeling and multiple altitude data. *J. Geophysical Research: Planets* **115**, E07007, doi:10.1029/2009JE003556, 2010.
37. Leinhardt, Z. M., R. A. Marcus, **S. T. Stewart**. The Formation of the Collisional Family around the Dwarf Planet Haumea. *Astrophysical Journal* **714**, 1789-1799, doi:10.1088/0004-637X/714/2/1789, 2010.
38. Boyce, J., N. Barlow, P. Mouginis-Mark, **S. Stewart**. Rampart craters on Ganymede: their implications for fluidized ejecta emplacement. *Meteoritics and Planetary Science* **45**, 638-661, doi:10.1111/j.1945-5100.2010.01044.x, 2010.

39. Marcus, R. A., D. Sasselov, **S. T. Stewart**, L. Hernquist. Water/Icy Super-Earths: Giant Impacts and Maximum Water Content. *Astrophysical Journal Letters* **719**, L45-L49, doi:10.1088/2041-8205/719/1/L45, 2010.
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