

# SABINE STANLEY

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## **EDUCATION:**

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- Ph.D. in Geophysics, Harvard University [2004]
- M.A. in Geophysics, Harvard University [2003]
- B.Sc. Honors in Astronomy & Physics. University of Toronto [1999]

## **PROFESSIONAL EXPERIENCE:**

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- Bloomberg Distinguished Professor, Dept. of Earth & Planetary Sciences & Applied Physics Lab, Johns Hopkins University [2017-now]
- Professor [2015-2016], Associate Professor (Tenured) [2010-2015], Assistant Professor [2005-2010], Dept. of Physics, University of Toronto [2015-2016]
- Associate Chair, Undergraduate Studies, Dept. of Physics, University of Toronto [2015-2016]
- Postdoctoral Researcher, Department of Earth, Atmospheric & Planetary Sciences, Massachusetts Institute of Technology [2004-2005]
- Graduate Research Assistant, Department of Earth & Planetary Sciences, Harvard University [1999-2004]
- Teaching Fellow, Division of Engineering & Applied Sciences, Harvard University [1999-2004]

## **AWARDS AND HONORS:**

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- Dean's Outstanding Teaching Award, Faculty of Arts & Science, University of Toronto [2015]
- Canada Research Chair (Tier II) in Planetary Physics [2012-2017]
- Science Leadership Fellow, University of Toronto [2013-2014]
- Sloan Research Fellow, Alfred P. Sloan Foundation [2011-2013]
- William Gilbert Award, American Geophysical Union (AGU), Geomagnetism and Paleomagnetism Section [2010]
- Ranjini Ghosh Excellence in Teaching Award, University of Toronto [2010]
- Early Researcher Award, Ministry of Research and Innovation, Province of Ontario [2009-2013]
- Graduate Teaching Award, University of Toronto [2007]

## **PROFESSIONAL AFFILIATIONS:**

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- Science Steering Committee Member, Computational Infrastructure for Geodynamics (CIG) Organization [2016-now]
- Executive Committee Member, Study of Earth's Deep Interior, a Committee of the International Union of Geodesy and Geophysics (IUGG) [2015-now]
- Editor, Journal of Geophysical Research – Planets [2014-now]
- President, American Geophysical Union (AGU) Focus Group: Study of the Earth's Deep Interior (SEDI) [2015-2016]
- President-elect, AGU Focus Group: SEDI [2013-2014]

- member: American Astronomical Society (AAS), American Geophysical Union (AGU), European Geophysical Union (EGU)

#### **PROFESSIONAL ACTIVITIES AND SERVICE:**

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- Chair, Talent Pool Strategy Task Force, American Geophysical Union (AGU) [September 2017-now]
- Member, AGU Governance/Leadership Development Committee [July 2017-now]
- Chair, NASA Grant Proposal Review Panel [2017]
- Nominations Committee Member, Computational Infrastructure for Geodynamics (CIG) Organization [2017]
- Member, Canadian Space Agency (CSA) Topical Team on Planetary Exploration: Planetary Geology, Geophysics and Prospecting [2016]
- Member, AGU Affiliation and Engagement Task Force [2014-2016]
- Member, Geodynamo Working Group of the CIG [2013-now]
- Member, Steering Committee, Women in Physics Canada Conference [2014-2016]
- Faculty Advisor, Local Organizing Committee for Women in Physics Canada 2015 Conference [2014-2015]
- Chair, SEDI Graduate Research Award Selection Committee [2014]
- External Peer Reviewer for grant proposals submitted to:
  - Swiss National Supercomputing Centre, National Science Foundation (NSF), Austrian Science Fund (FWF), Natural Sciences & Engineering Research Council of Canada (NSERC), NASA
- Journal Referee for manuscripts submitted to:
  - *Astrophysical Journal*, *Earth Planet. Sci. Lett.*, *Europhys. Lett.*, *Geophys. J. Int.*, *Geophys. Res. Lett.*, *Icarus*, *J. Geophys. Res.*, *Nature*, *Physics Today*, *Phys. Earth Planet Int.*, *Planet. Space Sci.*, *Science*, *Space Science Rev.*
- Panel Member for grant proposal evaluation: NASA, German Research Foundation (DFG), Compute Canada, SciNet
- Program Committee Member:
  - Geomagnetism & Paleomagnetism Section, AGU/CGU Spring Joint Assembly [2014-2015]
  - Study of Earth's Deep Interior (SEDI) Section, AGU/CGU Spring Joint Assembly [2008-2009]
- Convenor for Conference Sessions:
  - AGU/CGU Joint Assembly [2015 (2)], AGU Fall Meeting [2003, 2006 (2), 2010 (2), 2012, 2014, 2016, 2017], Gordon Research Conference: *Interior of the Earth* [2009]
- Reviewer for Monographs:
  - "Treatise on Geophysics, Volume 5: Geomagnetism and Planetary Magnetism", Chapter 1. [2006]
  - "Physics of the Earth", new edition by Frank Stacey [2006]
- Member of Canadian Space Exploration Working Group (CSEWG) Planetary Geology and Geophysics Section, co-writer of CSEWG report: "Canadian Scientific Priorities for the Global Exploration Strategy" [2008-2009].

#### **PROFESSIONAL DEVELOPMENT/TRAINING:**

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- Women in Leadership: Approach and Impact, Carey Business School, Johns Hopkins University, January 2018
- Best Practices in University Teaching, Johns Hopkins University, January 2018

- SafeZone Training, Johns Hopkins University, May 2017

## OUTREACH ACTIVITIES:

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- Writer, Bloomberg View article on the Cassini Grand Finale: <https://www.bloomberg.com/view/articles/2017-09-05/cassini-s-last-photos-will-be-spectacular> [2017]
- Editor's Vox, EOS. "Women in Science: A Q&A with an Editor": <https://eos.org/editors-vox/women-in-science-a-qa-with-an-editor> [2017]
- Reviewer of *The Spinning Magnet*, Alanna Mitchell, Penguin Random House, 2018.
- Speaker at JHU "Lunch and Learn" Series for undergraduate students, November 2017
- Developer, UOIT Science Teacher workshop: "Using python in high school physics classes" [2015]
- Faculty Advisor, UofT Branch of *Let's Talk Science* [2014-2016]
- Contributor to "Ask a Scientist" for Government of Canada [science.gc.ca](http://science.gc.ca) website [2012-2014]
- Twitter feed for *Planetary Geology and Geophysics in Canada*: @pgg\_canadian [2012-2015]
- Mentor for Physics Mentorship Program [2010/11, 2013/14, 2014/15, 2015/16]
- Master of Ceremonies for Astronomy and Space Exploration (ASX) Society event: *7<sup>th</sup> Annual Expanding Canada's Frontiers Symposium*. [2010]
- Speaker/Presenter:
  - Quarknet Teacher Workshop, Johns Hopkins University [2017]
  - ScienceUnlimited@UofT Summer Camp in the physical sciences for high school students, "Scientific Computing in Physics" Workshop, University of Toronto [2015, 2014, 2013, 2012]
  - ScienceUnlimited@UofT Summer Camp, "The Physics of Chaos" Workshop, University of Toronto [2014, 2013, 2012]
  - Chaos Workshop for Grade 12 physics class from TDCH Woodbridge [2014, 2013, 2012]
  - Durham SciTech Talk Series by the Durham District School Board: "Mars: A Magnetic History" [2014]
  - POPTOR (Physics Olympiad Preparation Toronto) session: "The Physics of Chaos" [2013]
  - Toronto Science Festival "*Café Scientifique*" [2013]
  - *Space Day*, Royal Ontario Museum [2012]
  - Let's Talk Science: Live online chat on "The Moon & Astronomy" [2012]
  - High School Gifted Program Conference workshop: "The Physics of Chaos", hosted by Toronto Catholic District School Board [2012]
  - Physics and Astronomy Student Union (PASU) Lecture [2011]
  - "Balancing Teaching and Research" session for new faculty at the University of Toronto [2010]
  - International Physics Olympiad Training Camp for Canadian high school students: presentation on Electricity and Magnetism [2010]
  - "Girls Rock Science workshop: *Chaos: What is it? Where is it? How do we study it?*" for high-school girls. [2010, 2009, 2008]
  - *Science Rendezvous*, city-wide event held in Toronto, ON. [2008, 2009]
  - University of Toronto Spring Reunion Open House [2007]
  - Workshop for women graduate students considering careers in Academia, University of Toronto [2007]
  - Physics & Astronomy Students Union (PASU) "Physics Subject POST Selection session", University of Toronto [2007]
  - "UofT in Space" event during UofT Fall Campus Days [2006]
  - Department of Physics Undergraduate Summer Research Lecture Series [2006]

- Canadian Association for Girls in Science (CAGIS) event at a skating rink: “The Physics of Ice Skating” [2006]
- Television, radio and podcast appearances:
  - CBC Radio’s *Quirks and Quarks* Interviews and Question Shows [2015 (2), 2009 (2), 2008 (2)]
  - The Star Spot podcast, Episode 22: Magnetism: Probing Planets and Searching for Life [2013]
  - Fairchild TV’s program: The Physics of the Frisbee [2012]
  - CTV News segment: The Earth’s rotation [2011]
  - CBC’s *Test the Nation* representing the winning “Nerds” team for the Annual IQ test [2010]
  - Perimeter Institute’s *Quantum to Cosmos* festival event: Worlds Beyond Earth. [2009]
- Interviewee for:
  - Washington Post article on Earth rotational dynamics and core-mantle coupling [2015]
  - Non-fiction book “The Spinning Magnet” in preparation by Alanna Mitchell [2015]
  - Toronto Star article on the physics of jockeying in horse-racing [2012]
  - Toronto Star article on the physics of the ‘quad’ in figure skating [2011]
  - local high school student’s physics project on “Women in Physics” [2009]
  - National Geographic television documentary entitled “The Earth Stood Still” [2009]
  - Discovery Channel television documentary entitled “The World Without” [2009]
  - *Nature* news story [2008]

**PRESENTATIONS:** (STUDENTS UNDERLINED)

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INVITED CONFERENCE PRESENTATIONS:

1. Stanley, S., & Tian, B.Y., “Ice Giant Dynamos”, The Next Steps in Ice Giant Exploration Workshop, *Division of Planetary Sciences Meeting*, 2017.
2. Stanley, S., “Dynamos in Exoplanets: What’s Different?”, *Brown Dwarf to Exoplanet Connection II*, 2017.
3. Stanley, S., Tian, B.Y. and Vilim, R., “Exoplanet Magnetic Fields and Their Detectability”, *American Geophysical Union (AGU) Fall Meeting*, 2014.
4. Stanley, S., “Detecting Saturn’s Non-axisymmetric Magnetic Fields”, *Cassini-Juno Workshop*, 2014.
5. Stanley, S., “Planetary Magnetism: Unlocking the Secrets of Planetary Interiors”, *IUPAP International Conference on Women in Physics*, 2014.
6. Stanley, S., “Planetary Dynamos: Updates and New Frontiers”, *Heliophysics Summer School*, 2014.
7. Stanley, S., “Unlocking the secrets of planetary interiors”, *Women in Physics Canada Conference*, 2013.
8. Stanley, S., “Dynamos in Planets and Stars”, *Heliophysics Summer School*, 2013.
9. Stanley, S., “New insights into planetary deep interiors”, *Study of the Earth’s Deep Interior (SEDI) Symposium*, 2012.
10. Stanley, S., “Numerical modelling of planetary dynamos”, *American Physical Society, Division of Plasma Physics Meeting*, 2011.
11. Stanley, S., “Numerical modelling of planetary dynamos”, *European Planetary Science Congress – Division of Planetary Sciences (EPSC-DPS) Joint Meeting*, 2011.
12. Stanley, S., Vilim, R., Weiss, B.P., Elkins-Tanton, L.T., “Dynamo generation in asteroids and planetesimals”, *AGU Fall Meeting*, 2010.
13. Stanley, S., Zuber, M.T., Elkins-Tanton, L.T., Parmentier, E.M., “The dynamo’s sensitivity to core-mantle thermal interactions: Investigations of Mars and Earth”, *AGU Fall Meeting*, 2009.
14. Stanley, S., “A dynamo model for axisymmetrizing Saturn’s internal magnetic field using thermal winds in stably stratified layers”, *AGU Fall Meeting*, 2009.

15. Stanley, S., “Planetary Dynamos”, *Canadian Institute for Theoretical Astrophysics (CITA) Workshop on Stellar Magnetism*, 2009.
16. Stanley, S., Elkins-Tanton, L., Zuber, M., Parmentier, E.M., “Creating abnormal dynamo models to explain the abnormal magnetic fields of Mars and Mercury”, *Joint Assembly of the AGU and Canadian Geophysical Union (CGU)*, 2009.
17. Stanley, S., Elkins-Tanton, L., Zuber, M.T., and Parmentier, E.M., “Mars’ Paleomagnetic Field as the Result of a Single-Hemisphere Dynamo”, *European Geophysical Union (EGU) Spring Meeting*, 2009.
18. Stanley, S., “Dynamo models of Mercury, Uranus and Neptune: The Weird Ones”, *International Space Science Institute Workshop on Planetary Magnetism*, 2008.
19. Stanley, S., “Dynamos of the Ice Giants”, *Ecoles de Physique Summer School on Dynamos*, 2007.
20. Stanley, S., Zuber, M.T. and Bloxham, J., “Determining core properties from a planet’s magnetic field morphology”, *AGU Fall Meeting*, 2005.
21. Stanley, S., “What can planetary magnetic fields tell us about their interiors?”, *Gordon Research Conference: Interior of the Earth*, 2005.
22. Stanley, S. and Bloxham, J. “Convective region geometry as the cause of Uranus’ and Neptune’s unusual magnetic fields”, *CGU – AGU Joint Assembly*, 2004.
23. Stanley, S., Bloxham J., Zuber, M.T. and Hutchison, W.E., “Can Mercury’s magnetic field be generated by a dynamo?”, *MESSENGER (MErcury Surface, Space Environment, Geochemistry, and Ranging) Science Team Meeting*, 2004.
24. Stanley, S. and Bloxham, J., “Numerical models of planetary magnetic fields”, *AGU-EGU Joint Assembly*, 2003.

CONTRIBUTED CONFERENCE PRESENTATIONS (AS FIRST AUTHOR):

25. Stanley, S., Tian, B.Y., Tikoo, S.M., and Weiss, B.P., “The Ancient Lunar Dynamo: How to Resolve the Intensity and Duration Conundrums”, *Lunar and Planetary Science Conference (LPSC)*, 2017.
26. Stanley, S. and Tian, B.Y., “The Role of Convective Shell Thickness on Dynamo Scaling Laws for Magnetic Field Morphology: Implications for the Ice Giants and Future Earth”, *AGU Fall Meeting*, 2016.
27. Stanley, S. and Bloxham, J., “On the Secular Variation of Saturn’s Magnetic Field”, *AGU/CGU Joint Assembly*, 2015.
28. Stanley, S. and Tajdaran, K., “Dynamo Models for Saturn’s Axisymmetric Magnetic Field: Finding the Non-axisymmetry”, *AGU Fall Meeting*, 2013.
29. Stanley, S. and Tajdaran K., “Dynamo Models for Saturn’s Axisymmetric Magnetic Field”, *AGU Fall Meeting*, 2012.
30. Elkins-Tanton, L., Zuber, M. T. and Parmentier, E. M., “Mars’ Paleomagnetic Field as the Result of a Single-Hemisphere Dynamo”, *AGU Fall Meeting*, 2008.
31. Stanley, S., “A dynamo model of Saturn’s extremely axisymmetric magnetic field”, *Committee on Space Research*, 2008.
32. Stanley, S., “A dynamo model of Saturn’s extremely axisymmetric magnetic field”, *AGU Spring Meeting*, 2008.
33. Stanley, S., Zuber, M.T. and Bloxham, J., “Determining dynamo region properties from observations of a planet’s magnetic field”, *AGU Fall Meeting*, 2006.
34. Stanley, S., Zuber, M.T., Bloxham, J. and Hutchison, W.E., “Force balances in thin shell dynamo models with applications to Mercury and Mars”, *EGU Annual Meeting*, 2005.

35. Stanley, S., Zuber, M.T., Bloxham, J. and Hutchison, W.E., “Using future observations to determine whether the source of Mercury’s magnetic field is an active dynamo”, *Lunar and Planetary Science Conference*, 2005.
36. Stanley, S., Bloxham, J., Hutchison, W.E. and Zuber, M.T., “Thin shell dynamo models consistent with Mercury’s weak observed magnetic field”, *AGU Fall Meeting*, 2004.
37. Stanley, S., Bloxham, J., Hutchison, W.E. and Zuber, M.T., “Can Mercury’s weak observed magnetic field be generated by a dynamo?”, *AGU Fall Meeting*, 2003.
38. Stanley, S., and Bloxham, J., “Numerical modeling of planetary dynamos”, *Planetary Dynamos Workshop*, 2003.
39. Stanley, S., and Bloxham, J., “Numerical modeling of Uranus’ and Neptune’s unusual magnetic fields”, *AGU Fall Meeting*, 2002.
40. Polano, S., and Bloxham, J., “Numerical modeling of the magnetic fields of Uranus and Neptune”, *AGU Fall Meeting*, 1998. (note: Polano is my maiden name).

CO-AUTHORED CONFERENCE PRESENTATIONS (WITH MY STUDENTS AS FIRST AUTHOR):

41. Yan, C. and Stanley, S., “Sensitivity of the Geomagnetic Octupole to a Stably Stratified Layer in the Earth’s Core”, *AGU Fall Meeting*, 2017.
42. Powell, J., Stanley, S., “Implications of Using the GAD Hypothesis in Paleopole Studies for the Moon”, *AGU Fall Meeting*, 2017.
43. Yan, C. and Stanley, S., “Sensitivity of the Geomagnetic Octupole to a Stably Stratified Layer in the Earth’s Core”, *Gordon Research Conference: Interior of the Earth*, 2016.
44. Urbancic, N., Ghent, R., Johnson, C., Stanley, S., et al., “Subsurface Density Structure of Taurus Littrow Valley Using Apollo 17 Gravity Data”, *AGU Fall Meeting*, 2016.
45. Tian, B.Y., Stanley, S. and Valencia, D., “Incorporation of Helium Demixing in Interior Structure Models of Saturn”, *European Geophysical Union General Assembly*, 2015.
46. Urbancic, N., Stanley, S., Ghent, R., Carroll, K.A. et al., “Exploring Lunar Sub-surface Objects Using Surface Gravimetric Surveys”, *Lunar and Planetary Science Conference*, 2015.
47. Tian, Z., Zuber, M.T. and Stanley, S., “Magnetic Field Modeling for Mercury Using Dynamo Models with Stable Layers and Laterally Variable Heat Flux”, *Lunar and Planetary Science Conference*, March 2015.
48. Tian, B.Y., Stanley, S., Tikoo, S.M. and Weiss, B.P., “A Precession-Driven Lunar Dynamo Model”, *AGU Fall Meeting*, 2014.
49. Vilim, R. and Stanley, S., “Can a solid FeS layer help explain Mercury’s unique magnetic field?”, *AGU Fall Meeting*, 2014.
50. Tian, B.Y., Stanley, S., Tikoo, S.M., Weiss, B.P. and Wisdom, J., “A Precession-Driven Lunar Dynamo Model”, *European Geophysical Union Meeting*, 2014.
51. Tian, B.Y. and Stanley, S., “Interior Structure Modeling of Water-Rich Planets: Implications for their Dynamo Source Regions”, *AGU Fall Meeting*, 2013.
52. Vilim, R., Stanley, S., Dumberry, M., “The Effect of a Heterogeneous Electrically Conducting Mantle Layer on Secular Variation in the Geodynamo”, *AGU Fall Meeting*, 2013.
53. Dharmaraj, G. and Stanley, S., “Dynamo Generation Mechanisms: What Determines the Dynamo Type?”, *AGU Fall Meeting*, 2013.
54. Tian, B.Y. and Stanley, S., “Interior Structure of Water Planets: Implications for Their Dynamo Source Regions”, *Lunar & Planetary Science Conference*, 2013.
55. Vilim, R., Stanley, S., Elkins-Tanton, L., “The Effect of an Electrically Conducting Lower Mantle on Dynamo Generated Planetary Magnetic Fields”, *Les Houches Winter School on Waves and Instabilities in Geophysical and Astrophysical Flows*, 2013.

56. Vilim, R., Stanley, S., Elkins-Tanton, L., “The Effect of an Electrically Conducting Lower Mantle on Dynamo Generated Planetary Magnetic Fields”, *AGU Fall Meeting*, 2012.
57. Dharmaraj, G. and Stanley, S., “Influence of boundary conditions on planetary dynamos”, *SEDI Symposium*, 2012.
58. Vilim, R., Stanley, S. and Elkins-Tanton, L.T., “The effect of lower mantle metallisation on the dynamo generated magnetic fields of Super-Earths”, *SEDI Symposium*, 2012.
59. Vilim, R., Stanley, S. and Elkins-Tanton, L.T., “The effect of lower mantle metallisation on the dynamo generated magnetic fields of Super-Earths”, *CPS 9<sup>th</sup> International School of Planetary Sciences*, 2012.
60. Dharmaraj, G. and Stanley, S., “Influence of thermal and velocity boundary conditions on planetary dynamos”, *AGU Fall Meeting*, 2011.
61. Leung, J. and Stanley, S., “Mars magnetic field intensity: Relationship to core-mantle boundary thermal variability”, *EPSC-DPS Joint Meeting*, Nantes, FR, 2011.
62. Vilim, R., Stanley, S. and Elkins-Tanton, L., “The effect of an electrically conducting lower mantle on planetary dynamos in large terrestrial exoplanets”, *EPSC-DPS Joint Meeting*, Nantes, FR, 2011.
63. Dharmaraj, G. and Stanley, S., “Effect of inner core conductivity on planetary dynamos”, *Canadian Association of Physics (CAP) Congress*, 2010.
64. Dharmaraj, G. and Stanley, S., “The effects of inner core conductivity on planetary dynamo models”, *AGU Fall Meeting*, 2009.
65. Vilim, R., Stanley, S., Hauck, S.A., “Dynamo models incorporating iron ‘snow zones’ consistent with Mercury’s weak observed magnetic field”, *AGU Fall Meeting*, 2009.
66. Vilim, R., Stanley, S., Hauck, S.A., “Dynamo models incorporating iron snow zones consistent with Mercury’s weak observed magnetic field”, *Gordon Research Conference: Interior of the Earth*, 2009.
67. Dharmaraj, G., Stanley, S., “Effects of inner core conductivity on planetary magnetic field morphology”, *Gordon Research Conference: Interior of the Earth*, 2009.
68. Vilim, R., Stanley, S. and Hauck, S.A., “Dynamo models incorporating iron snow zones consistent with Mercury’s weak observed magnetic field”, *Joint Assembly of the AGU and CGU*, 2009.
69. Dharmaraj, G., Stanley, S., “Effects of inner core conductivity on planetary magnetic field morphology”, *Joint Assembly of the AGU and CGU*, 2009.
70. Vilim, R., Stanley, S., and Hauck, S., “The effect of iron ‘snow’ layers on magnetic field generation in Mercury”, *AGU Fall Meeting*, 2008.

INVITED LECTURES:

1. Center for Environment and Applied Fluid Mechanics, Johns Hopkins University, 2017.
2. Carnegie Institute of Washington, Department of Terrestrial Magnetism, 2017
3. University of Maryland, Department of Geology, 2017
4. Princeton University, Geosciences Department, 2016.
5. McGill University, Space Science Institute, 2016.
6. University of Guelph, Department of Physics, 2016.
7. Stanford University, Department of Geological Sciences, 2016.
8. York University, Department of Physics & Astronomy, 2015.
9. York University, Astronomy Club, 2015.
10. Johns Hopkins University, Department of Physics and Astronomy, 2015.
11. Florida State University, Department of Physics, 2014.
12. University of Western Ontario, Department of Earth Sciences, 2014.

13. University of Western Ontario, Centre for Planetary Science and Exploration (CPSX) Research Forum, 2014.
14. Astronomy and Space Exploration (ASX) Society “Star Talk”, 2013.
15. Harvard University, Department of Earth & Planetary Sciences, 2013.
16. Royal Canadian Institute/Royal Astronomical Society of Canada (RCI/RASC) Lecture, 2012.
17. Physics and Astronomy Student Union Lecture, University of Toronto, 2012.
18. MIT, Department of Earth, Atmospheric and Planetary Sciences, 2012.
19. Princeton Plasma Physics Laboratory, 2012.
20. University of Alberta, Department of Physics, 2012.
21. Université de Montréal, Département de Physique, 2012.
22. University of Ontario Institute of Technology, Sharcnet Seminar, 2012.
23. University of Rochester, Department of Astronomy/Astrophysics, 2011.
24. Physics and Astronomy Student Union Lecture, University of Toronto, 2011.
25. University of Toronto Alumni Association “Canadian Perspectives” Lecture, 2010.
26. Royal Astronomical Society, Ontario Science Centre, 2009.
27. California Institute of Technology, Division of Geological & Planetary Sciences, 2007.
28. University of Toronto, Department of Physics, 2007.
29. University of California Los Angeles, Department of Earth & Space Sciences, 2007.
30. University of Toronto, Department of Geology, 2007.
31. Carnegie Institute of Washington, Department of Terrestrial Magnetism, 2006.
32. University of Colorado Boulder, Department of Astrophysical & Planetary Sciences, 2006.
33. University of Chicago, Department of Geophysical Sciences, 2006.
34. University of Toronto at Mississauga, Department of Chemical and Physical Sciences, 2006.
35. Princeton University, Department of Geosciences, 2006.
36. Royal Military College, Department of Physics, 2006.
37. University of British Columbia, Physics and Astronomy Department, 2005.
38. University of Toronto, Department of Astronomy & Astrophysics, 2005.
39. University of California Berkeley, Department of Earth & Planetary Sciences, 2005.
40. Brown University, Department of Geosciences, 2004.

#### **PUBLICATIONS:**

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1. Hauck II, S.A., Grott, M., Byrne, P.K., Denevi, B.W., **Stanley, S.**, & McCoy, T.J., “Mercury’s Global Evolution”, in Mercury after the MESSENGER mission, ed. Solomon, S.C., Nittler, L. & Anderson, B.J. Cambridge University Press, *in press*.
2. Tian, B.Y., **Stanley, S.**, Tikoo, S.M., and Weiss, B.P., “A lunar dynamo model consistent with the paleomagnetic record”, *in revisions*.
3. **Urbancic, N.**, Ghent, R., Johnshon, C.L, **Stanley, S.**, Hatch, D., Carroll, K.A., Garry, W.B. & Talwani, M., “Subsurface Density Structure of Taurus Littrow Valley Using Apollo 17 Gravity Data”, *JGR-Planets*, **122**, 1181-1194 (2017).
4. Scheinberg, A., Fu, R.R., Elkins-Tanton, E., Weiss, B.P. & **Stanley, S.**, “Magnetic fields on asteroids and planetesimals”, in Planetesimals: Early Differentiation and Consequences for Planets, ed. Elkins-Tanton, L.T. & Weiss, B.P., Cambridge University Press, 180-203 (2017).
5. Matsui et al. (including **Stanley, S.**), “Performance benchmarks for a next general numerical dynamo model”, *Geochem. Geophys. Geosys.*, **17**, 1586-1607 (2016).
6. **Stanley, S.**, “Planetary Dynamos: Updates and New Frontiers” in: *Heliophysics: Active Stars, their Astrospheres, and Impacts on Planetary Environments*, ed. K. Schrijver, F. Bagenal and J. Sojka. Cambridge University Press, 121-136 (2016).



7. **Stanley, S.** and Bloxham, J., “On the Secular Variation of Saturn’s Magnetic Field”, *Phys. Earth Planet. Int.* **250**, 31-34 (2016).
8. Mitrovica, J.X., Hay, C.C., Morrow, E., Kopp, R.E., Dumberry, M. & **Stanley, S.**, “Reconciling Past Changes in Earth Rotation with 20<sup>th</sup> Century Global Sea-Level Rise: Resolving Munk’s Enigma”, *Science Advances* **1**, e1500679 (2015).
9. Tian, Z., Zuber, M.T. and Stanley, S., “Magnetic field modelling for Mercury using dynamo models with stable layers and laterally variable heat flux”, *Icarus* **260**, 263-268 (2015).
10. Batygin, K. & **Stanley, S.**, “Non-axisymmetric flows on Hot Jupiters with Oblique Magnetic Fields”, *Astrophys. J.* **794**:10 (2014).
11. Dharmaraj, G., & **Stanley, S.**, “Scaling laws, force balances and dynamo generation mechanisms in numerical dynamo models: Influence of boundary conditions”, *Geophys. J. Int.* **199**, 514-532 (2014).
12. **Stanley, S.**, “Magnetic Field Generation in Planets”, in: *Encyclopedia of the Solar System*, 3<sup>rd</sup> edition, ed: T. Spohn, T.V. Johnson & D. Breuer. Elsevier, 121-136 (2014).
13. Chan, N.-H., Mitrovica, J.X., Daradich, A., Creveling, J.R., Matsuyama, I. and **Stanley, S.**, “Time-Dependent Rotational Stability of Dynamic Planets with Elastic Lithospheres”, *J. Geophys. Res.* **119**, doi:10.1002/2013JE004466 (2014).
14. Batygin, K., **Stanley, S.** and Stevenson, D., “Magnetically controlled circulation on hot extrasolar planets”, *Astrophys. J.* **776**: 53 (2013).
15. Vilim, R., **Stanley, S.**, and Elkins-Tanton, L., “The effect of lower mantle metallization on magnetic field generation in rocky exoplanets”, *Astrophys. J. Lett.* **768**, L30 (2013).
16. Tian, B.Y. & **Stanley, S.**, “Interior structure of water planets: Implications for their dynamo source regions”, *Astrophys. J.* **768**, 156 (2013).
17. Dharmaraj, G. and **Stanley, S.**, “Effect of inner core conductivity on planetary dynamo models”, *Phys. Earth Planet. Int.* **212-213**, 1-9 (2012).
18. Chan, N.-H., Mitrovica, J.X., Matsuyama, I., Creveling, J.R. and **Stanley, S.**, “The rotational stability of a convecting Earth: Assessing inferences of rapid TPW in the late cretaceous”, *Geophys. J. Int.* **187**, 1319-1333 (2011).
19. Chan, N.H., Mitrovica, J.X., Matsuyama, I., Latychev, K., Creveling, J.R., **Stanley, S.** and Morrow, E., “The rotational stability of a convecting Earth: The Earth’s figure and TPW over the last 100 Myr”, *Geophys. J. Int.* **187**, 773-782 (2011).
20. Serbanescu, R.M., Kushner, P.J. and **Stanley, S.**, Putting computation on a par with experiments and theory in the Undergraduate Physics curriculum, *American Journal of Physics* **79**, 919 (2011).
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