Curriculum Vitae - Miki Nakajima

Contact Information

Department of Earth and Environmental Sciences
University of Rochester
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mnakajima@rochester.edu

Education

California Institute of Technology 2010 – 2016
Ph.D., Planetary Science (defended on Oct 30 2015)
Minor in Computational Science and Engineering
M.Sc., Planetary Science 2010 – 2013
Advisor: D. J. Stevenson

Tokyo Institute of Technology 2007 – 2009
M.Sc., Earth and Planetary Sciences
Advisors: S. Ida and H. Genda

University of California, Santa Cruz 2007 – 2008
Exchange Program, Astronomy and Astrophysics
Advisors: E. Asphaug and D. N. C. Lin

Tokyo Institute of Technology 2003 – 2007
B.Sc., Earth and Planetary Sciences
Advisors: S. Ida and M. Ikoma

Academic Employment

University of Rochester
Assistant Professor, Earth and Environmental Sciences Jul 2018 –
Secondary appointment in Physics and Astronomy

Carnegie Institution for Science Dec 2015 – Jun 2018
Carnegie Postdoctoral Fellow

Teaching Experience

Geodynamics, University of Rochester	Fall 2019
Planetary interiors, University of Rochester	Spring 2019
TA, Introduction to the Solar System, Caltech	Spring 2012, 2013
TA, Planetary Structure and Evolution, Caltech	Spring 2014, 2015

Mentoring

Scott Hull, UR graduate student	Aug 2019 –
Jeremy Atkins, UR undergraduate student	Aug 2018 –
Keegan Ryan, Caltech undergraduate student (with D. J. Stevenson)	Jun – Sep 2013

Awards & grants

NASA Emerging Worlds (PI), $387,123	2019 – 2022
Postdoctoral Innovation and Excellence Award	2017
Carnegie DTM Postdoctoral Fellowship, $62,000 annually	2015 – 2018
NASA Earth and Space Science Fellowship (NESSF), $30,000 annually	2014 – 2015
Murata Overseas Scholarship, , $30,000 annually	2010 – 2012
Yoshida Scholarship (fellowship for studying abroad) (declined)	2010 – 2013
JSPS Research Fellowships for Young Scientists	2010
Moriyasu Graduate Student Scholarship	2009 – 2010
Study Abroad Scholarship, Japan Student Services Organizations	2007 – 2008

Professional Service

Referee for Nature, Nature Geoscience, Nature Astronomy, Nature Communications, Science, Philosophical Transactions of the Royal Society A, Earth and Planetary Science Letters, Icarus, Journal of Geophysical Research, Astronomy and Astrophysics
Review Panelist and Executive Secretary for NASA programs

Outreach Activities

Panelist at a STEM event by the Society of Asian Scientists and Engineers	Apr 2019
Organizer of USA Science and Engineering Festival	Apr 2018
Public lecture at the Virginia Astronomy Club	Mar 2018
Organizer of Science Outreach Program: Planet Hunting in Tokyo	Oct 2016
Presenter of Workshop on Studying Abroad at Tokyo Tech	Jun 2016
Organizer of USA Science and Engineering Festival	Apr 2016
Organizer of Community Science Event at Caltech	Feb 2015
Organizer of Japanese Students' Visit at Caltech	2013 – 2015

Peer-reviewed Publications

Nakajima, M., Golabek, G. J., Wuennemann, K., Rubie, D. C., Burger, C., Manske, L., Melosh, H. J., Jacobson, S. A., Nimmo, F., Hull, S. D. Scaling laws for the geometry of an impact-induced magma ocean. Submitted.

Quillen, A. C., Martini, L., and **Nakajima, M.**, 2019. Near/far side asymmetry in the tidally heated Moon. Icarus, 329, 182-196.

Nakajima, M., and Stevenson, D. J., 2018. Inefficient volatile loss from the Moon-forming disk: reconciling the giant impact hypothesis and a wet Moon. Earth and Planetary Science Letters, 487, 117-126.

Hauri, E. H., Saal, A. E., **Nakajima, M.**, Anand, M., Rutherford, M. J., Van Orman, J. A., and Le Voyer, M., 2017. Origin and Evolution of Water in the Moon's Interior. Annual Review of Earth and Planetary Sciences, 45, 89-111.

Jacobson, S. A., Rubie, D. C., Hernlund, J., Morbidellie, A., and **Nakajima, M.**, 2017. Formation, Stratification and Mixing of the Cores of Earth and Venus. Earth and Planetary Science Letters, 474, 375-386.

Nakajima, M., and Ingersoll, A. P., 2016. Controlled boiling on Enceladus. 1. Model of the vapor-driven jets. Icarus, 272, 309-318.

Ingersoll, A. P., and **Nakajima, M.**, 2016. Controlled boiling on Enceladus. 2. Model of the liquid-filled cracks, 272, 319-326.

Nakajima, M., and Stevenson, D. J., 2015. Melting and Mixing States of the Earth's Mantle after the Moon-Forming Impact. Earth and Planetary Science Letters, 427, 286-295.

Nakajima, M., and Stevenson, D. J., 2014. Investigation of the Initial State of the Moon-Forming Disk: Bridging SPH Simulations and Hydrostatic Models. Icarus, 233, 259-267.

Nakajima, M., and Genda, H., Asphaug, E. I., and Ida, S., Constraints on Exomoon Formation. (in prep.)

Nakajima, M., and Stevenson, D. J., Dynamical mixing of planetary cores by giant impacts. (in prep.)

Other Publications

Nakajima, M., 2016. Core Science: Stratified by a Sunken Impactor. Nature Geoscience, News & Views, 9, 734 - 735.

Invited Seminars

June 2019 Origin of the Earth and Moon. Seminar, Institute de Physique du Globe de Paris (IPGP), Paris, France.

Apr 2019 Origin of the Earth and Moon. Nelson Lecture, Syracuse University, Syracuse, NY, USA.

Sep 2018 Origin of the Earth and Moon. Astronomy and Space Sciences, Cornell University, Ithaca, NY, USA.

Sep 2018 Origin of the Earth and Moon. EPS Seminar, The University of Edinburgh, Edinburgh, UK.

Sep 2018 Origin of the Earth and Moon. Seminar, Max Planck Institute for Solar System Research, Göttingen, Germany.

Jun 2018 Origin of the Earth, Moon, and Martian Moons. Seminar, Tohoku University, Sendai, Japan.

Jun 2018 Origin of the Earth, Moon, and Martian Moons. Seminar, University of Tokyo, Tokyo, Japan.

May 2018 Origin of the Earth, Moon and Martian Moons. Seminar, NASA Goddard Space Flight Center, Lanham, MA, USA.

Apr 2018 Origin of the Earth, Moon and Martian Moons. Geoscience seminar, Scripps Institution of Oceanography, University of California, San Diego, CA, USA.

Mar 2018 Origin of the Earth, Moon and Martian Moons. Seminar, Smithsonian Institution, Washington, DC, USA.

Feb 2018 Origin of the Earth, Moon and Martian Moons. Department colloquium, Case Western Reserve University, Cleveland, OH, USA.

Nov 2017 Origin of the Earth and Moon. USNO Seminar, US Naval Observatory, Washington, DC, USA.

Oct 2017 Origin of the Martian Moons and Exomoons. Fall 2017 Colloquium, University of Rochester, Rochester, NY, USA.

Sep 2017 Origin of the Earth, Moon, and Martian Moons. Special Seminar, Physics & Geological Sciences, University of Colorado, Boulder, CO, USA.

May 2017 Origin of the Earth and Moon. TRR170 Seminar, Freie Universität Berlin, Berlin, Germany.

May 2017 Origin of the Earth and Moon. Seminar Series, University of Münster, Münster, Germany.

Mar 2017 Exploring Moons in the Solar System and Beyond. Special Seminar, University of Rochester, Rochester, NY, USA.

Mar 2017 Origin of the Earth and Moon. Special Seminar, University of Rochester, Rochester, NY, USA.

Feb 2017 Origin of the Earth and Moon. Special Seminar, University of Oxford, Oxford, UK.

Nov 2016 Origin of the Earth, the Moon, and exomoons. Astrophysics, Gravitation, and Cosmology Seminar, University of Illinois at Urbana-Champaign, Champaign, IL, USA.

Nov 2016 Implications of the Moon Formation for the Earth's Mantle and Magnetic Field. Geochemistry Seminar, University of Maryland, College Park, MA, USA.

Mar 2016 Controlled boiling on Enceladus: Model of the vapor-driven jets. Enceladus workshop, University of California, Berkeley, Berkeley, CA, USA.

Mar 2016 Origin of the Earth and Moon. Solar System Exploration Winter Seminar Series, NASA/Goddard Space Flight Center, Greenbelt, MA, USA.

Feb 2016 Origin of the Earth and Moon. Earth and Planetary Sciences Randolph Bromery Spring 2016 Seminar Series, Johns Hopkins University, Baltimore, MA, USA.

Feb 2016 Origin of the Earth and Moon. GeoSci Seminar, University of Chicago, Chicago, USA.

Nov 2015 Origin of the Earth and Moon. Plunch talk, University of California, Santa Cruz (UCSC), Santa Cruz, USA.

Sep 2015 Effects of giant impacts on planetary magnetic fields and exomoon formation. GFD Seminar, ETH Zurich, Zurich, Switzerland.

May 2015 Implications for mantle melting and the magnetic field from giant impact simulations. 2015 ACCRETE Group Meeting, Bayerisches Geoinstitut (BGI), Bayreuth, Germany.

May 2015 Implications for mantle melting, volatile loss, and the magnetic field from giant impact simulations, Brown University, Providence, RI, USA.

May 2015 Origin of the Earth and Moon, DEEPS Colloquia Series, Brown University, Providence, RI, USA.

Feb 2015 Moon formation recipes. iPLEX Lunch Talk, University of California, Los Angeles (UCLA), Los Angeles CA, USA.

Jan 2015 Origin of the Earth and Moon. DTM Weekly Seminar Series, Carnegie Institution of Washington DTM, Washington, DC, USA.

Nov 2014 Origin of the Earth and Moon and its implications for exomoon formation. Southwest Research Institute (SwRI), Boulder CO, USA.

Sep 2014 Initial states of the Earth's mantle and Moon-forming disk. GFD Seminar, ETH Zurich, Zurich, Switzerland.

Apr 2014 Do we understand the origin of the Moon? Woman in Aerospace Symposium, Massachusetts Institute of Technology (MIT), Boston MA, USA.

Selected Conference Talks

Nakajima, M., 2019. Consequences of giant impacts. COMPRESS 2019, Big Sky, Montana, USA. (*Keynote*)

Nakajima, M., 2019. Consequences of planetary impacts: mantle melting and core formation. European Week of Astronomy and Space Science (EWASS), Lyon, France.

Nakajima, M., and van Keken, P. E., 2018. Effects of plate tectonic simulations on mantle convection and mixing. 2018 AGU Fall Meeting, Washington, DC, USA.

Nakajima, M., and Canup, R. M., 2018. Origin of the Martian Moons and Their Water Abudances. Goldshcmidt 2018, Boston, MA, USA.

Nakajima, M., and Canup, R. M., 2017. Origin of the Martian Moons and Their Water Abudances. 48th Lunar and Planetary Science Conference, 2900, The Woodlands TX, USA.

Nakajima, M., and Hauri, E. H., 2017. Initial Water Abundance of the Bulk Silicate Moon. 48th Lunar and Planetary Science Conference, 2858, The Woodlands TX, USA.

Nakajima, M., Rubie, D., Melosh, H. J., Nimmo, F., Jacobson, S. A., Morbidelli, A., 2016. Extent of Mantle Melting by Giant Impacts. Magma Oceanology Workshop, Atami, Japan. (*Invited*)

Nakajima, M., and Stevenson, D. J., 2016, Dynamical mixing of planetary cores by giant impacts. 47th Lunar and Planetary Science Conference, 2053, The Woodlands TX, USA.

Nakajima, M., and Stevenson, D. J., 2015. The state of the Earth's mantle after the giant impact. 2015 AGU Fall Meeting, San Francisco, USA. (*Invited*)

Nakajima, M., and Ingersoll, A. P., 2015. Controlled boiling on Enceladus: Model of the vapor-driven jets. 2015 AGU Fall Meeting, San Francisco, USA.

Nakajima, M., and Genda, H., Asphaug, E. I., and Ida, S., 2014. Constraints on Exomoon Formation. 46th DPS Meeting, Tucson AZ, USA.

Nakajima, M., and Stevenson, D. J., 2014. The Initial State of Earth's Mantle after the Moon-Forming Impact. International interdisciplinary workshop, Accretion and Early Differentiation of the Earth and Terrestrial Planets (ACCRETE), Nice, France.

Nakajima, M., and Stevenson, D. J., 2014. Moon-forming Disk - Formation and Water Loss. The proto-lunar disk splinter session, Accretion and Early Differentiation of the Earth and Terrestrial Planets (ACCRETE), Nice, France. (*Invited*)

Nakajima, M., and Stevenson, D. J., 2014. Hydrodynamic Escape does not Prevent the "Wet" Moon Formation. 45th Lunar and Planetary Science Conference, 2770, The Woodlands TX, USA.

Nakajima, M., and Stevenson, D. J., 2013, Thermodynamic Processes During the Moon-Forming Impact. 44th Lunar and Planetary Science Meeting, The Woodlands TX, USA.

Nakajima, M., and Stevenson, D. J., 2012, The Initial State of the Moon Forming Disk and the Earth's Mantle. 43rd Lunar and Planetary Science Meeting, The Woodlands TX, USA.