

Assistant Professor Yuji Harada

Department of Engineering Science, Faculty of Innovation Engineering
Macau University of Science and Technology

PhD. Supervisor

Office: A303c

Tel.: (853) 8897 2122

E-mail: yharada@must.edu.mo

Address: Avenida Wai Long, Taipa, Macau.

Academic Qualification:

Bachelor of Science in Geoscience, University of Tsukuba, Japan, from 1998/04 to 2002/03.

Master of Science in Earth Evolution Science, University of Tsukuba, Japan, from 2002/04 to 2004/03.

Doctor of Science in Earth and Planetary Science, University of Tokyo, Japan, from 2004/04 to 2008/03.

Teaching Area

Area:

Earth and Planetary Science, esp. Solid Earth and Planetary Physics.

Course:

Instructor of Elective Course "Celestial Mechanics" (MIIE33) in Masters Degree Programme of Science (Information Technology), Academic Year 2015/2016 Semester II.

Instructor of Compulsory Course "Earth Science" (MSEZ04) in Masters Degree Programme of Earth and Planetary Sciences, from Academic Year 2016/2017 Semester I to 2021/2022 Semester II.

Instructor of Compulsory Course "Planetary Science" (MSEZ03) in Masters Degree Programme of Earth and Planetary Sciences, from Academic Year 2017/2018 Semester II to 2021/2022 Semester II.

Instructor of Course "Physics" (PHYS100) in Bachelors Degree Programme, from Academic Year 2022/2023 Semester I until now.

Research Area

Area:

Geophysics, esp. Geodesy and Geodynamics, incl. Viewpoint of Comparative Planetology.

Interest:

Simple Theoretical Research on Rotation and Deformation of Planets and Satellites in Our Solar System, e.g., the Earth, the Moon, Mars, the Galilean Satellites, ...

Working Experience

Teaching Assistant in Graduate School of Life and Environmental Sciences, University of Tsukuba, Japan, from 2002/05 to 2002/06.

Teaching Assistant in Graduate School of Life and Environmental Sciences, University of Tsukuba, Japan, from 2002/11 to 2003/02.

Teaching Assistant in Graduate School of Life and Environmental Sciences, University of Tsukuba, Japan, from 2003/04 to 2003/06.

Teaching Assistant in Graduate School of Life and Environmental Sciences, University of Tsukuba, Japan, 2004/01.

Research Assistant in Earthquake Research Institute, University of Tokyo, Japan, from 2004/07 to 2004/11.

Research Assistant in Graduate School of Science, University of Tokyo, Japan, from 2005/04 to 2007/03.

Research Assistant in National Astronomical Observatory of Japan, National Institutes of Natural Sciences, Japan, from 2005/06 to 2006/03.

Research Assistant in National Astronomical Observatory of Japan, National Institutes of Natural Sciences, Japan, from 2006/06 to 2007/03.

Research Assistant in Earthquake Research Institute, University of Tokyo, Japan, from 2007/05 to 2007/10.

Postdoctoral Researcher in National Astronomical Observatory of Japan, National Institutes of Natural Sciences, Japan, from 2008/04 to 2010/03.

Postdoctoral Researcher in Earthquake Research Institute, University of Tokyo, Japan, from 2010/04 to 2010/07.

Postdoctoral Researcher in Shanghai Astronomical Observatory, Chinese Academy of Sciences, China, from 2010/08 to 2012/06.

Postdoctoral Researcher in Earthquake Research Institute, University of Tokyo, Japan, from 2012/07 to 2013/03.

Postdoctoral Researcher in School of Earth Sciences, China University of Geosciences, China, from 2013/04 to 2015/01.

Assistant Professor in Space Science Institute, Macau University of Science and Technology, China, from 2015/02 to 2022/06.

Assistant Professor in Faculty of Innovation Engineering, Macau University of Science and Technology, China, from 2022/07 until now.

Research Grants

from 2015:

Principal Investigator, Tidal Energy Dissipation inside the Lunar Interior, Macau University of Science and Technology Foundation, 0434, from 2015/04 to 2016/06.

Co-Investigator, Shape, Internal Structure, Zonal Winds and Gravitational Field of Jupiter and Saturn, Science and Technology Development Fund of Macau, 007/2016/A1, from 2016/07 until 2019/07.

Principal Investigator, Tidal Dissipation inside the Lunar and Planetary Interiors, Science and Technology Development Fund of Macau, 187/2017/A3, from 2018/05 until 2021/05.

Co-Investigator, Key Scientific Objectives of Giant Planet Systems, China National Space Administration, D020303, from 2020/01 until 2022/12.

Co-Investigator, Thermodynamic Evolution of the Martian Lithosphere Based on the Tianwen-1 Mission, Science and Technology Development Fund of Macau, 0020/2021/A1, from 2021/09 until 2024/09.

Co-Investigator, Influence of Large Impact Events on the Internal Structure and Thermo-dynamic Evolution of the Moon based on Numerical Simulation, National Natural Science Foundation of China, 12173106, from 2022/01 until 2025/12.

Representative publications (Complete publication refer to my webpage)

Journal Articles:

Y. Harada and K. Kurita, The dependence of surface tidal stress on the internal structure of Europa: The possibility of cracking of the icy shell, *Planetary and Space Science*, 54, 170-180, 2006.

Y. Harada and K. Kurita, Effect of non-synchronous rotation on surface stress upon Europa: Constraints on surface rheology, *Geophysical Research Letters*, 34, 1-5, 2007.

F. Kikuchi, Q. Liu, H. Hanada, N. Kawano, K. Matsumoto, T. Iwata, S. Goossens, K. Asari, Y. Ishihara, S. Tsuruta, T. Ishikawa, H. Noda, N. Namiki, N. Petrova, Y. Harada, J. Ping, and S. Sasaki, Picosecond accuracy VLBI of the two subsatellites of SELENE (KAGUYA) using multifrequency and same beam methods, *Radio Science*, 44, 1-7, 2009.

Q. Liu, F. Kikuchi, K. Matsumoto, S. Goossens, H. Hanada, Y. Harada, X. Shi, Q. Huang, T. Ishikawa, S. Tsuruta, K. Asari, Y. Ishihara, N. Kawano, S. Kamata, T. Iwata, H. Noda, N. Namiki, S. Sasaki, S. Ellingsen, K. Sato, K. Shibata, Y. Tamura, T. Jike, K. Iwadate, O. Kameya, J. Ping, B. Xia, T. An, Q. Fan, X. Hong, W. Yang, H. Zhang, Y. Aili, B. Reid, W. Hankey, J. McCallum, G. Kronschnabl, and W. Schlüter, Same-beam VLBI observations of SELENE for improving lunar gravity field model, *Radio Science*, 45, 1-16, 2010.

H. Hanada, T. Iwata, Q. Liu, F. Kikuchi, K. Matsumoto, S. Goossens, Y. Harada, K. Asari, T. Ishikawa, Y. Ishihara, H. Noda, S. Tsuruta, N. Petrova, N. Kawano, S. Sasaki, K. Sato, N. Namiki, Y. Kono, K. Iwadate, O. Kameya, K. M. Shibata, Y. Tamura, S. Kamata, Y. Yahagi, W. Masui, K. Tanaka, H. Maejima, X. Hong, J. Ping, X. Shi, Q. Huang, Y. Aili, S. Ellingsen, and W. Schlüter, Overview of Differential VLBI Observations of Lunar Orbiters in SELENE (Kaguya) for Precise Orbit Determination and Lunar Gravity Field Study, *Space Science Reviews*, 154, 123-144, 2010.

S. Goossens, K. Matsumoto, Q. Liu, F. Kikuchi, K. Sato, H. Hanada, Y. Ishihara, H. Noda, N. Kawano, N. Namiki, T. Iwata, F. G. Lemoine, D. D. Rowlands, Y. Harada, and M. Chen, Lunar gravity field determination using SELENE same-beam differential VLBI tracking data, *Journal of Geodesy*, 85, 205-228, 2011.

J. Yan, S. Goossens, K. Matsumoto, J. Ping, Y. Harada, T. Iwata, N. Namiki, F. Li, G. Tang, J. Cao, H. Hanada, and N. Kawano, CEGM02: An improved lunar gravity model using Chang'E-1 orbital tracking data, *Planetary and Space Science*, 62, 1-9, 2012.

J. Yan, F. Li, J. Ping, J. M. Dohm, Y. Harada, and Z. Zhong, A simulation of Martian gravity field recovery by using a near equatorial orbiter, *Advances in Space Research*, 49, 1019-1027, 2012.

Y. Harada, Long-term polar motion on a quasi-fluid planetary body with an elastic lithosphere: Semi-analytic solutions of the time-dependent equation, *Icarus*, 220, 449-465, 2012.

S. Kamata, S. Sugita, Y. Abe, Y. Ishihara, Y. Harada, T. Morota, N. Namiki, T. Iwata, H. Hanada, H. Araki, K. Matsumoto, and E. Tajika, Viscoelastic deformation of lunar impact basins: Implications for heterogeneity in the deep crustal paleo-thermal state and radioactive element concentration, *Journal of Geophysical Research*, 118, 398-415, 2013.

Y. Harada, S. Goossens, K. Matsumoto, J. Yan, J. Ping, H. Noda, and J. Haruyama, Strong tidal heating in an ultralow-viscosity zone at the core-mantle boundary of the Moon, *Nature Geoscience*, 7, 569-572, 2014.

Y. Harada and L. Xiao, A timescale of true polar wander of a quasi-fluid Earth: An effect of a low-viscosity layer inside a mantle, *Physics of the Earth and Planetary Interiors*, 240, 25-33, 2015.

S. Kamata, S. Sugita, Y. Abe, Y. Ishihara, Y. Harada, T. Morota, N. Namiki, T. Iwata, H. Hanada, H. Araki, K. Matsumoto, E. Tajika, K. Kuramoto, and F. Nimmo, The relative timing of Lunar Magma Ocean solidification and the Late Heavy Bombardment inferred from highly degraded impact basin structures, *Icarus*, 250, 492-503, 2015.

Y. Harada, S. Goossens, K. Matsumoto, J. Yan, J. Ping, H. Noda, and J. Haruyama, The deep lunar interior with a low-viscosity zone: Revised constraints from recent geodetic parameters on the tidal response of the Moon, *Icarus*, 276, 96-101, 2016.

J. Yan, S. Liu, C. Xiao, M. Ye, J. Cao, Y. Harada, F. Li, X. Li, and J.-P. Barriot, A degree-100 lunar gravity model from the Chang'e 5T1 mission, *Astronomy and Astrophysics*, 636, 1-11, 2020.

C. Xiao, F. Li, J.-G. Yan, W.-F. Hao, Y. Harada, M. Ye, and J.-P. Barriot, Inversion of Venus internal structure based on geodetic data, *Research in Astronomy and Astrophysics*, 20, 1-20, 2020.

Y. Tan and Y. Harada, Tidal constraints on the low-viscosity zone of the Moon, *Icarus*, 365, 1-13, 2021.

C. Xiao, F. Li, J. Yan, M. Gregoire, W. Hao, Y. Harada, M. Ye, and J.-P. Barriot, Possible deep structure and composition of Venus with respect to the current knowledge from geodetic data, *Journal of Geophysical Research*, 126, 1-22, 2021.

Y. Harada, Reconsideration of the anelasticity parameters of the martian mantle: Preliminary estimates based on the latest geodetic parameters and seismic models, *Icarus*, 383, 1-7, 2021.

Conference Papers:
Not Applicable

Books & Book Chapters:
Not Applicable

Professional Certification and Awards

Certification:

Level 1 Passing, Chinese Proficiency Test, China, 2014/06.

Level 2 Passing, Chinese Proficiency Test, China, 2014/07.

Level 3 Passing, Chinese Proficiency Test, China, 2015/01.

Level 4 Passing, Chinese Proficiency Test, China, 2015/03.

Award:

10th Group Prize "Contributions to the Lunar Geodesy in the SELENE Project", Tsuboi Prize of Geodetic Society of Japan, Japan, 2010/05.

24th Individual Prize "Constraints on the Deep Lunar Interior Based on the Tidal Response Parameters", Tsuboi Prize of Geodetic Society of Japan, Japan, 2016/10.

Society Membership

Japan Geoscience Union
Japanese Society for Planetary Sciences
Geodetic Society of Japan
Astronomical Society of Japan (until 2019/03)
American Geophysical Union
European Geosciences Union
Asia Oceania Geosciences Society

Journal Editorship

Not Applicable

Personal Website

Not Applicable