Matthieu Laneuville

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Employment

2015-present Project Assistant Professor, Earth Life Science Institute (Tokyo Institute of Technology)
- organizer of the “Planetary Diversity” international workshop (24 attendees)
- organizer of ELSI’s “Lunch Talks” to promote broad scientific discussions within the institute
- co-chair of ELSI’s 4th International Symposium “Planets as Integrated Systems”
- member of the research interaction committee to promote collaborations

2014-2015 Research Scientist, Earth Life Science Institute (Tokyo Institute of Technology)
- organization of an “English lunch” for Japanese students, and several social activities
- part of meeting series to improve inter-disciplinary understanding/communication
- lead of a discussion group to model the Earth as a system, including the biosphere

Education

Ph.D. *Geophysics*, Institut Physique du Globe de Paris (IPGP) **2010-2013**

Title: “Thermochemical Evolution of the Moon”
Collaboration between IPGP (M. Wieczorek) and the DLR (D. Breuer).
Received with jury’s honours (C. Jaupart, S. Labrosse, T. Spohn, J. Aubert).

M.Sc. *Physics*, Université Pierre et Marie Curie (UPMC), Paris, France **2008-2010**

Internship at Institut de Physique du Globe de Paris (IPGP), with Mark Wieczorek.
Internship at German Aerospace Center (DLR), with Doris Breuer.

B.Sc. *Physics*, Université de Provence I, Marseille, France **2005-2008**

Exchange student at Ottawa University, Canada, for 1 year.

Awards/Grants

2016-2018 JSPS Grant-in-Aid for Scientific Research (JPY 1,600,000 ~ GBP 11,000)
2016 EON Workshop Fund (JPY 3,000,000 ~ GBP 20,000)
2016 ELSI’s Incentive Award (JPY 1,000,000 ~ GBP 7,000)
2015 Itoh Foundation Fellow (JPY 400,000 ~ GBP 2,700)
2015 ELSI’s Director Fund for Multidisciplinary Studies (JPY 500,000 ~ GBP 3,400)
2013 Co-PI HLRN Supercomputer Access (1,200k hours)
2012 Co-PI JSC Supercomputer Access (384k hours)
2012 CNES Alpbach Summer School Fellow (EUR 1,100 ~ GBP 900)

Professional activities

2018 LPSC Dwornik Award Judge
2018 Reviewer for JGR Planets
2017 NASA NSPIRES proposal reviewer
2017 Creators meet Scientists workshop

2016 Reviewer for EPSL, Icarus
2016 Co-chair "Young Researchers' day" for ELSI's 5th International Symposium
2016 Outreach: "Ask me anything: Planetary Sciences" at Tokyo Institute of Technology
2016 Outreach article contribution for French magazine "Pour la Science" (cover story)
http://www.pourlascience.fr/ewb_pages/a/article-la-lune-une-histoire-pleine-de-surprises-37296.php
2015 Co-chair for ELSI's 4th International Symposium
2014 Reviewer for JGR Planets, PSS
2014 Contributions for outreach articles in French and German newspapers
2014 Reviewer for JGR Planets, PEPI
2010 Co-chair for IPGP's "Congrès des Doctorants"

Teaching

2011 Course Assistant for 1st year Computing Tools students
2010 Course Assistant for 2nd year Mathematics students

Publications

[12] Laneuville M., Cleaves H. Kameya M., Earth Without Life: A Systems Model of a Global Abiotic Nitrogen Cycle. **Astrobiology** (2018).

[11] Laneuville M., Hernlund J., Labrosse S., and Guttenberg, N., Crystallization of a compositionally stratified basal magma ocean. **Phy Earth Planet Int** (2017).

[10] Tasker E., et al (17 authors), The language of exoplanet ranking metrics needs to change. **Nature Astronomy** 1, 42 (2017).

[9] Siegler M., Miller R. Keane J., Laneuville M., Paige D., Matsuyama I., Lawrence D., Crotts A. and Poston M., Lunar true polar wander inferred from polar hydrogen. **Nature** 531, 480-484 (2016).

[8] Guttenberg N., Laneuville M., Ilardo M. and Aubert-Kato N, Transferable measurements of heredity in models of the origins of life. **PLoS ONE** 10, E0140663 (2015).

[7] Bocanegra-Bahamon T., Bracken C., Costa Sitja M., Dirkx D., Gerth I., Konstantinidis K., Labrianidis C., Laneuville M., Luntzer A., MacArthur J., Maier A., Morschhauser A., Nordheim T., Sallantin R. and Tlustos R., MUSE – Mission to the Uranian system: unveiling the evolution and formation of ice giants. **Adv Space Res** 55, 2190-2216 (2015).

[6] Arridge C., et al. (114 authors), The science case for an orbital mission to Uranus: exploring the origins and evolution of ice giant planets. **Planet Space Sci** 104, 122-140 (2014).

[5] Laneuville M., Wieczorek M., Breuer D., Aubert J., Morard G. and Rueckriemen T., A long-lived lunar dynamo powered by core crystallization. **Earth Planet Sci Lett** 401, 251-260 (2014).

[4] Laneuville M., Wieczorek M., Breuer D. & Tosi N., Asymmetric thermal evolution of the Moon. **J Geophys Res** 118, 1435-1452 (2013).

[3] Miljkovic K., Wieczorek M., Collins G., Laneuville M., Neumann G., Melosh J., Solomon S., Phillips R., Smith D. & Zuber M., Asymmetric distribution of lunar impact basins caused by variations in target properties. **Science** 342, 724-726 (2013).

[2] Le Bars M., Wieczorek M., Karatekin O., Cebron D. & Laneuville M., An impact-driven dynamo for the early Moon. **Nature** 479, 215-218 (2011).

[1] Grott M., Breuer D. & Laneuville M., Thermo-chemical evolution and global contraction of Mercury. **Earth Planet Sci Lett** 307, 135-146 (2011).

Conference Talks [* invited]

[*19*] Laneuville M., Tasker E., Guttenberg N., Exoplanet Data: Understanding the Diversity of Worlds, **4D Workshop**, Washington, USA (2018).

[18] Laneuville M., Cébron D., Supercooling and High Magnetic Field on the Early Moon, **European Lunar Symposium**, Toulouse, France (2018).

[17] Laneuville M., Cébron D., Core Supercooling and High Magnetic Field on the Early Moon, **New Views of the Moon 2 Workshop**, Aizu, Japan (2018).

[*16*] Laneuville M., Hernlund J., Labrosse S., Lasbleis M., Helffrich G., Stratifications and Magnetic Field Generation, **Interaction and Coevolution of the Core and Mantle Workshop**, Matsuyama, Japan (2018).

[15] Laneuville M., Taylor J., Wieczorek M., Lunar Radioactive Heat Sources Distribution and Magnetic Field Generation, **49th Lunar and Planetary Science Conference (LPSC)**, Houston, USA (2018).

[14] Laneuville M., Tasker E., Guttenberg N., #AltPlanets: Exploring the Exoplanet Catalogue with Neural Networks, **American Geophysical Union (AGU)**, New Orleans, USA (2017).

[13] Laneuville M., Breuer D., Plesa A.-C., Schwinger S., Miljkovic K., Lunar Surface Mg# Distribution and Magma Ocean Crystallization, **SELENE Symposium 2017**, Tokyo (2017).

[*12*] Laneuville M., Heterogeneous Moon: Endogenous and Exogenous Processes in Lunar Evolution, **Goldschmidt Conference**, Paris, France (2017).

[11] Laneuville M., Taylor J., Wieczorek M., Distribution of radioactive heat sources and magnetic field, **New Views of the Moon 2 Workshop**, Muenster, Germany (2017).

[10] Laneuville M., Breuer D., Plesa A.-C., Schwinger S., Lunar surface Mg# distribution and magma ocean crystallization, **48th Lunar and Planetary Science Conference (LPSC)**, Houston, USA (2017).

[9] Laneuville M., Heterogeneous formation of the lunar crust, **Goldschmidt Conference**, Yokohama, Japan (2016).

[*8*] Laneuville M., Inner core crystallization, a power source for the lunar dynamo. **Advances in lunar magnetism: from paleomagnetism to dynamos**, Cargese, France (2016).

[7] Laneuville M., Hernlund J., Labrosse S. & Guttenberg N. Effect of a fractionated basal magma ocean on the Earth dynamo. **12th Asia Oceania Geoscience Society Annual Meeting (AOGS)**, Singapore, Singapore (2015).

[6] Laneuville M., Foriel J., Fujii Y. & Virgo N., Energy and entropy flows in planets. **11th Rencontres du Vietnam**, Quy Nhon, Vietnam (2015).

[5] Laneuville M., Wieczorek M., Breuer D., Aubert J., Morard G. & Rueckriemen T. A long-lived lunar dynamo powered by core crystallization. **45th Lunar and Planetary Science Conference (LPSC)**, Houston, USA (2014).

[4] Laneuville M., Wieczorek M., Breuer D. & Tosi N. Asymmetric thermal evolution of the Moon. **44th Lunar and Planetary Science Conference (LPSC)**, Houston, USA (2013).

[3] Laneuville M., Wieczorek M., Breuer D. & Tosi N. Asymmetric thermal evolution of the Moon. **Geodynamics Workshop**, Wandlitz, Germany (2012).

[2] Laneuville M., Wieczorek M., Breuer D. & Tosi N. Asymmetric thermal evolution of the Moon. **Planetary Volcanism Workshop**, Toulouse, France (2012).

[1] Laneuville M., Breuer D. & Grott M. Thermo-chemical evolution and global contraction of Mercury. **European Planetary Science Congress (EPSC)**, Rome, Italy (2010).

Invited Seminars, Colloquia

2018-05 Laboratoire Lagrance, Observatoire de la Cote d'Azur, Nice, France.

2018-05 Institut des Sciences de la Terre, Grenoble, France.

2018-05 Institut de Mineralogie, Physique des Materiaux et Cosmochimie, Paris, France.

2018-02 School of Earth and Planetary Sciences, Curtin University, Perth, Australia.

2016-11 Faculty of Earth Sciences, Vrije Universiteit Amsterdam, The Netherlands.

2016-07 Institute of Space and Astronautical Science, JAXA, Sagamihara, Japan.

2014-06 School of Earth and Space Science, Peking University, Beijing, China.