

## Curriculum Vitae of Olivier Mouis

**First name:** Olivier    **Family name:** Mouis    **E-mail:** [olivier.mouis@lam.fr](mailto:olivier.mouis@lam.fr)

**Birth date:** November 28<sup>th</sup>, 1973    **Married, 2 daughters**

**Research statement:** Olivier Mouis' research focuses on the study of the formation conditions of planetary systems, with particular emphasis on our Solar System. His goal is to establish a link between the present chemical/physical properties of planetary bodies and those associated with the many processes leading to their formation and primordial evolution in protoplanetary disks, using data obtained from spacecraft, ground-based facilities, and laboratory experiments. He is also involved in the design and preparation of robotic missions to explore the outer solar system. He has led a long-term effort to define future space missions that will deliver atmospheric entry probes to the four giants, with a special focus on Saturn (he was the PI of the HERA mission proposal submitted to ESA in response to the M4 and M5 calls) and more recently on the icy giants Uranus and Neptune. Recently, Olivier Mouis has been the Principal Investigator of an international consortium aiming to propose an Enceladus exploration mission in response to ESA's 2022 M-class call ([Moonraker mission](#)).

Olivier Mouis is the laureate of a Fundamental Chair awarded by the Institut Universitaire de France in 2022, and of a Senior Chair of Excellence awarded by the University of Aix-Marseille in 2015. He is also the PI of the FACOM (FAtE of the volatile COMpounds at the galilean MOons) consortium funded by the French National Research Agency for the period 2022-2025. He has been elected Corresponding Member of the [International Academy of Astronautics](#) in 2024.

Olivier Mouis has authored/co-authored over 260 research papers (59 as first author and 58 as second author), and delivered 550+ oral and written contributions at international conferences. Hindex = 66 and 14500+ citations (source Google Scholar, July 2024).

Olivier Mouis is the Director of the [Origins institute](#) at Aix-Marseille University, which encompasses 200 researchers, postdocs, PhD students, and engineers, making it the largest astrobiology institute in France. He is currently focused on establishing a Space Center within the institute, dedicated to the construction of small satellites and instruments for exploration missions. Additionally, he serves as Editor-In-Chief of the journal [Earth and Planetary Science Letters](#).

**Key words:** solar system – planetary systems – formation – giant planets – moons – comets – exoplanets – solar system exploration

### Career:

- **Since October 2023:** Editor-In-Chief, Earth and Planetary Science Letters <https://www.sciencedirect.com/journal/earth-and-planetary-science-letters>
- **Since September 2022:** Senior Fundamental Chair from the Institut Universitaire de France [https://en.wikipedia.org/wiki/Institut\\_Universitaire\\_de\\_France#:~:text=The%20Institut%20Universitaire%20de%20France,evidenced%20by%20their%20international%20recognition](https://en.wikipedia.org/wiki/Institut_Universitaire_de_France#:~:text=The%20Institut%20Universitaire%20de%20France,evidenced%20by%20their%20international%20recognition).
- **Since July 21:** Director of the Origins Institute (institute of astrobiology from Aix-Marseille University gathering 180 researchers, University Professors, engineers and PhD students from 17 laboratories; budget of several millions of euros) [https://www.univ-amu.fr/system/files/2022-12/Fiche\\_Origines\\_2022-10-13\\_WEB.pdf](https://www.univ-amu.fr/system/files/2022-12/Fiche_Origines_2022-10-13_WEB.pdf)
- **Since 2017:** Full Professor at Aix-Marseille University (Exceptional Class since 2022), research carried out at the Laboratoire d'Astrophysique de Marseille;
- **2018 - 2021:** PI of the project of Origins institute

- **2025 – 2019:** Head of the planetology group at the Laboratoire d’Astrophysique de Marseille (20+ researchers, postdocs and PhD students);
- **February 2015 - August 2017:** Senior Chair of Excellence awarded by Aix-Marseille University;
- **January 2011 - January 2015:** Full Professor at the University of Franche-Comté
- **April 2014 - July 2014:** Visiting Scientist at Cornell University
- **September 2009 - August 2014:** Junior Member of the Institut Universitaire de France
- **September 2009 - May 2010:** Visiting Scientist at the University of Arizona
- **January 2005 - December 2010:** Associate Professor at the University of Franche-Comté

#### Education:

- Habilitation in Astrophysics, University of Franche-Comté (2006);
- Ph.D. in Astrophysics, University of Paris 7 (2001). PhD advisors: Daniel Gautier & Christophe Sotin. Dissertation about the origin of Titan and its atmosphere.;
- M.S. Astrophysics, University of Paris 7 (1998);
- B.S. Physics, University of Rennes (1997)

#### Awards and Achievements:

- **July 2024:** Corresponding Member of the International Academy of Astronautics;
- **November 2023:** ESA Certificate of Outstanding Contribution to the JUICE Mission;
- **September 2022:** Appointment as a Senior Member of Institut Universitaire de France;
- **July 2022:** PI of project FAtE of volatiles COmpounds at the galilean MOons (FACOM) funded by the French National Research Agency (501 keuros; success rate < 15%);
- **2017:** ESA Certificate of Outstanding Contribution to the Rosetta Mission;
- **December 2015:** Installation grant by the city of Marseille (a few researchers/year);
- **July 2014:** Endowed Senior Excellence Chair attributed by AMU (total of 17 chairs offered to 104 international applications);
- **February 2011:** 2011 Beatrice M. Tinsley Research Award;
- **October 2009:** Appointment as Junior Member of Institut Universitaire de France;
- **July 2008:** "Young Teacher-Researcher 2008" Prize of the French Society of Astronomy and Astrophysics;
- **2006 – now:** Scientific Excellence Award attributed by University of Franche-Comté and Aix-Marseille University;
- **September 2003:** Award of an ESA International Fellowship at Bern University.

Main topics investigated in the last fifteen years: origin and evolution of icy moons (context Cassini-Huygens, ESA/JUICE and NASA/Europa-Clipper missions); evolution of subsurface /surface/atmosphere interfaces (Mars, Europa, Enceladus); formation and thermal evolution of cometary nuclei (context Rosetta); formation and evolution of giant planets (context NASA/JUNO); interiors of Super-Earths (context ESA/CHEOPS and PLATO missions).

#### Scientific responsibilities in space missions:

- At the initiative of the Generic Entry Probe Program to be started in November 2023 (30+ members from EU and USA). This initiative gathers an international team of engineers and scientists whose aim is to study several concepts of entry probes that could be built by EU member states and delivered to NASA missions to Saturn or the ice giants;
- PI of the Moonraker mission proposal submitted to the ESA M7 call in December 2021 (including 50 researchers from EU and USA). This mission would accomplish multiple flybys of Saturn’s moon Enceladus to sample the plume of its south polar terrain;
- PI of 2 proposals for a Saturn entry probe. White paper submitted to ESA in May 2013. Proposal submitted to the ESA M4 call in June 2015, with D.H. Atkinson (JPL) as co-PI, including 50 researchers from Europe and the USA. Resubmission to the ESA M5 call in October 2016. Ranked in the top 5 of the 30 proposals submitted. ESA and NASA are now working on a joint mission to the frozen giants. I am currently one of the 4 European scientists who have been members of an ESA CDF team of a NASA/ESA mission to the frozen giants. I am also member of two US teams studying a Saturn entry probe concept to be submitted to the next New Frontier call. I recently started at LAM the study of 2 instruments

which could be part of the payload of such a probe: Tunable Laser System and aerosol counter in collaboration with LPC2E;

- Since 2014: Co-I of the MASPEX mass spectro (PI J. Burch) selected to fly on NASA/Europa Clipper;
- Since 2014: Co-I of the SWI Radar (PI P. Hartogh) selected to fly on ESA/JUICE;
- 2012-2019: Co-I of the PTOLEMY instrument (PI I. Wright) which was on Rosetta/Philae and member of the Rosetta/ROSINA team (PI K. Altwegg);
- Co-I of several past mission proposals: NASA NF4 SPRITE entry probe (PI A. Simon); NASA NF3 PRIME cometary mission (PI A. Cochran); ESA class M mission to Uranus (PI C. Arridge). 2005-2006: co-lead with A. Coradini of the ESA working group "Origin of the Jovian system" for the preparation of JUICE.

#### **Scientific supervision:**

- 4 PhD students mentored (M. Ali-Dib, T. Ronnet, B. Brugger, A. Aguichine)
- 5 PhD students co-mentored (U. Marboeuf, C. Thomas, A. Moudens, G.S. Pekmezci, A. Bouquet, L. Acuña)
- Supervisor (A. Amsler, A. Schneeberger, T. Benest, and Y. Bennacer) of 4 PhD theses started in 2019, 2020, and 2022.
- 20+ graduate students supervised (Master 2 level in French Universities)

**Participation in PhD and Habilitation (HDR) committees:** 15 PhD committees (excluding my students): M. Ferrais (AMU, Nov 2022, President), J. Mouzay (AMU, 12 Nov. 2020, Examiner), A. Drouard (AMU, Oct. 26, 2019, President), E. Gloesener (UC Louvain, Sept 03 2019, Examiner), A. Garcia (U. Lyon, Sept 04, 2017, Examiner), O. Ozgurel (Univ. Paris 6, sept. 29 2017, Examiner), N. Ligier (U. Paris Sud, Dec. 5 2016, Reviewer), B. Courcol (AMU, Oct. 12 2016, President), M. Marsset (AMU Oct. 06 2016, President), E. M. A. Moulay Larbi (U. Cadi Ayyad/Marrakech, Sept. 26 2016, Reviewer), C. de Beule (U. Duisburg, Jan. 23 2016, Reviewer), C.-Y. Liu (U. Nationale Tsing-Hua Taiwan Sept. 26 2014, Reviewer), E. Tallifet (CEA Saclay/U. Paris Sud Sept. 24 2014, Examiner), G. Bampasidis (U. of Athens Oct. 30 2012, Examiner), K. Mandt (U. Texas, Fev 2012, Examiner), L. Maquet (Obs. Paris March 12 2012, Reviewer). 4 Habilitation committees: F. Duvernay (AMU, 07 Nov. 2016, Reviewer), S. Bouley (U. Paris Sud May 10 2017, Examiner), T. Cavalié (U. Paris 6, 26 Sept 2018, Examiner), P. Vernazza (AMU, May 17 2016, Examiner).

#### **Current scientific responsibilities:**

- PI of the Moonraker proposal team. This proposal is aimed to be submitted to the next ESA L-class Call
- PI of the ANR FACOM over the period 2022-2026.
- PI of the project and now director of the Origins Institute (Establishment Institute of AMU, 200 researchers, engineers and PhD students from 15 laboratories)
- Member of the science councils of Observatory Pythéas (2021-) and LAM (2016-)
- Member of the ESA study team investigating the ESA contribution to a future NASA-ESA mission to the ice giants
- Member of a NASA/JPL team dedicated to the study of a Saturn probe
- Member of 4 New Frontiers 5 team (3 Saturn mission proposals, and 1 Io flyby mission proposal)
- 2016-2021: coordinator of the AMU Planetary Sciences pole
- 2016-2019: co-head of the Planetary Systems group at LAM (23 researchers including 12 permanent staff)

#### **Research contracts over the last 5 years:**

- 2022-2027: 15 keuros/year funded by the Institut Universitaire de France.
- 2021-2027: AMU funding of 2 Millions of euros for the Origins institute.
- Since 2016: CNES funding for Co-Iship on Europa-Clipper/MASPEX (25 keuros/year);
- Since 2016: CNES funding for entry probe projects (20 keuros/year).
- 2014-2017: Senior AMU Chair of Excellence (475,000 euros over the period).

- CNES funding for Co-Iship on Philae/PTOLEMY and Rosetta/ROSINA instruments (25 keuros/year over 2013-2017).

### **Service:**

- 2021 - now: Director of the Origins Institute at Aix-Marseille University
- 2014-2019: Member of the CNES Solar System Working Group.
- 2012-2015: Substitute member of the National Council of the Universities (Section 34)
- 2008-2012: Elected Member at the CNRS/Section 17 (hiring and career management of CNRS researchers, evaluation of laboratories, national politics in astrophysics and planetary science)
- Reviewer for numerous national/international projects (ANR, DIM-ACAV, NASA proposals, AERES evaluation committees, etc).
- Reviewer 4-5 times a year for international journals.

### **Editorial activities:**

- Since Oct. 2023: Editor-In-Chief, Earth and Planetary Science Letters;
- Editor with K.E. Mandt and D.H. Atkinson of a future special issue of the journal Space Science Reviews dedicated to the in situ exploration of the Giants (to appear in 2024);
- Editor with D.H. Atkinson of the special issue 218(1) of the journal Space Science Reviews dedicated to the in situ exploration of the Ice Giants;
- Editor with K.E. Mandt and D. Bockelée-Morvan of issue 197 (2015) of the journal Space Science Reviews dedicated to the state of knowledge about comets before Rosetta.

### **Organization of conferences:**

- Chair of the Workshop on the Origins and Habitability of the Galilean Moons (150 international attendants + future special issue in The Planetary Science Journal) held in Marseille on Oct. 24-26, 2023: <https://galileanmoons.com>
- Chair of the 2023 International Planetary Probe Workshop (250 international attendants) held in Marseille on Aug 26 – Sept. 01, 2023: <https://ippw2023.org>
- Co-chair with S. Sulis of the Summer School “Moons of the Solar System” held at the Observatoire de Haute Provence on June 26-30, 2023: <https://institut-origines-moons2023.com/>
- Co-chair with K.E. Mandt and D.H. Atkinson of the international workshop "In situ exploration of the Giants " held at the Applied Physics Laboratory, Columbia, July 12-14, 2022.
- Chair of the INSU workshop “Habitability signatures of planets and exoplanets” held in Marseille in Sept 2020.
- Chair of the international workshop on in situ exploration of the ice giants held in Marseille on 25-27 Feb 2019.
- Co-chair of the international workshop "Comets as Tracers Solar System Training and Evolution" held in Toulouse on 1-3 April 2014.
- Chair of 2 workshops dedicated to clathrates and held on 7-8 January 2010 (Obs. Besançon) and on 13-14 March 2008 (Rennes).

### **Outreach:**

- Organization of many outreach events via the Institute Origins;
- Co-author of a collective book entitled "Impacts, meteors with craters" published on October 10, 2017 by Belin editions under the direction of S. Bouley (2 chapters written).
- Regular interventions (8-10 per year) at schools, colleges or public events.
- Close collaboration with amateur astronomers using backyard telescopes. I led a collective article (~125 pp) gathering about 70 amateur and professional astronomers depicting the state of the art of PRO-AM collaborations in planetology (paper published in 2014 in Exp. Astron.).
- Since 2015, regional coordinator for the monitoring network of meteoric activity FRIPON. Various interventions in the media and numerous press releases published from my publications

**Invitations by foreign universities or organizations (\* designates stays > one month):**

Southwest Research Institute, Boulder (2023, 2024), CalTech/JPL (2006, 2009, 2011, 2016, 2017, 2018, 2019\*, 2023, 2024), Hefei (2024), Cornell U. (2014\*), Open U. (2007, 2012, 2015), Southwest Research Institute, San Antonio (2011, 2012\*, 2024), Canadian Astronomy Data Center (2006, 2008, 2010, 2011), Department of Astrophysics at Princeton U. (2011), Department of Astronomy at the U. Texas (Austin) (2011), Johns Hopkins Applied Physics Laboratory (2010, 2018), ETH Zurich (2009), U. of Arizona (2007\*, 2008\*), International Space Science Institute, Bern (2007\*), European Southern Observatory, Chile (2007\*).