

OLIVIER MOUSIS, PH.D.



Institution: Laboratoire d'Astrophysique de Marseille, Aix-Marseille Université

Position: Full Professor of Astrophysics

Education: HDR Astrophysics, University of Franche-Comté, 2006

Ph.D. Astrophysics, University of Paris 7, 2001

M.S. Astrophysics, University of Paris 7, 1998

B.S. Physics, University of Rennes, 1997

Professional Background:

2015 – present Full Professor, Laboratoire d'Astrophysique de Marseille, Aix-Marseille Université
Endowed Excellence Chair from Aix-Marseille Université

2011 – 2014 Full Professor, Institut UTINAM, University of Franche-Comté, Besançon, France

2009 – 2014 Member of the Institut Universitaire de France (IUF)

2008 – 2009 Visiting Scientist at the Lunar and Planetary Laboratory, University of Arizona

2005 – 2010 Associate Professor, Institut UTINAM, University of Franche-Comté, France

Experience:

Professor Mouis is an astrophysicist specializing in the field of solar system formation. He has acquired wide experience in studying the physical chemistry of the primitive nebula and the formation of the first solids that took part in the formation of solar system bodies. He also has a particular interest in studying the thermodynamic properties of clathrate hydrates, because such properties could make the hydrates play a key role in the formation of the outer solar system bodies. He has published original works interpreting measurements conducted by spacecraft missions of Jupiter's and Saturn's atmospheres and analyzing the formation conditions of these planets in the nebula that have led to their observed properties. He has also proposed, with colleagues, Titan and Enceladus formation scenarios consistent with the Cassini-Huygens spacecraft observations. Professor Mouis also works on the formation and evolution of comets and has developed a particular interest in the study of the exchange of volatiles at the surface/atmosphere interfaces of planets and satellites. The originality of his research is that, from scenarios describing the formation conditions of solar system bodies, he devises observational tests that will be measurable by current or future exploration missions. He has developed a broad network of international collaborations and works closely with scientists involved in space missions or working in the fields of theoretical chemistry or molecular dynamics. He received the price for young teacher-researcher of the French Astronomy and Astrophysics Society in 2008 and is member of the Institut Universitaire de France. He received the Beatrice M. Tinsley scholarship by the University of Texas in 2011 and has held several positions of visiting scientist at the University of Arizona and Cornell University. Mouis has been awarded a Senior Excellence Research Chair by Aix-Marseille University, starting in January 2015 and has been the PI of Saturn probe proposals submitted to the ESA M4 and M5 calls. He is author or co-author of >220 published/accepted refereed papers (first author of 52 papers). H-index = 51, 9548 citations (source google scholar).

Five relevant publications:

- Aguichine, A., **Mouis, O.**, Devouard, B., Ronnet, T. 2020. Rocklines as Cradles for Refractory Solids in the Protosolar Nebula. *The Astrophysical Journal* **901**. doi:10.3847/1538-4357/abaf47
- **Mouis, O.** and 7 colleagues 2020. Key Atmospheric Signatures for Identifying the Source Reservoirs of Volatiles in Uranus and Neptune. *Space Science Reviews* **216**. doi:10.1007/s11214-020-00681-y
- **Mouis, O.** and 7 colleagues 2020. Irradiated Ocean Planets Bridge Super-Earth and Sub-Neptune Populations. *The Astrophysical Journal* **896**. doi:10.3847/2041-8213/ab9530
- Mandt, K.E., **Mouis, O.**, Treat, S. 2020. Determining the origin of the building blocks of the Ice Giants based on analogue measurements from comets. *Monthly Notices of the Royal Astronomical Society* **491**, 488–494.
- Bouquet, A., **Mouis, O.**, Glein, C.-R., Danger, G., Waite, J.H. 2019. The Role of Clathrate Formation in Europa's Ocean Composition. *The Astrophysical Journal* **885**. doi:10.3847/1538-4357/ab40b0