



SEMINAR

LABORATORY ASTROPHYSICS with SHOCK TUBES



SPEAKER

Prof. Ludovic Biennier

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Astrophysical shocks play an important role in the chemical evolution of the interstellar medium, altering dust grains and releasing new molecules into the gas phase. However, the effect of shocks on carbon-rich cosmic dust remains poorly understood. Shock tubes are implemented to process analogues of interstellar carbonaceous dust, namely fullerenes, PAHs, and hydrogenated amorphous carbon. Analysis of the solid residues and the resulting gases showed strong dehydrogenation of the dust and the formation of small hydrocarbons. These findings offer new insight into the lifecycle of carbon in space and demonstrate the potential of shock tubes in laboratory astrophysics.

DATE

07 Oct 2026

TIME

3:00 PM, IST

VENUE

C109, Interdisciplinary Block (D1)

ORGANICS IN SPACE • INTERNATIONAL COLLABORATION



As part of Organics in Space research, the AMP lab is in active international collaboration in the domain of molecular astrophysics. In line with these efforts, we are actively discussing various collaborative opportunities with the molecular physics research group in Institut de Physique de Rennes, University of Rennes, France. Two experts from this group, **Prof. Ludovic Biennier** and **Prof. Robert Georges**, are also part of this proposed collaboration.

Both Prof. Ludovic Biennier, CNRS Senior Researcher and Head of department, and Prof. Robert Georges are world-renowned experts in energetic radiation processing of molecules in astronomy, with substantial contribution in the microwave and Far-IR spectroscopy of key astrophysical molecules.

These two members are going to visit IIST from **3rd to 8th October 2026**. During this time, we will be conducting some joint experiments using our home-built **Titan Reactor** and energy-correlated **Time-of-Flight mass spectrometer**.