

## **SHANTHINI K – ISU, MSS intern at PHYSICAL RESEARCH LABORATORY (PRL), India**

As an awardee of “The Sir John Mason Travel Bursary”, I take this opportunity to convey my immense pleasure to thank Masan family for providing me this grant which aided me to cover travel expense back and forth from France to India.

As a token of gratitude I would like to share few things about my internship place, experience here and the research work being carried out.

I have pursued the six months’ internship at the Atomic Molecular and Optical Physics Division of Physical Research Laboratory (PRL), Ahmedabad, India.

Physical Research Laboratory is an autonomous institution supported by Department of Space, Government of India. It has seven major divisions namely Astronomy & Astrophysics, Atomic Molecular & Optical Physics, Geoscience, Planetary Science, Planex, Space & Atmospheric Science and Theoretical Physics.

Atomic Molecular and Optical Physics (AMO-PH) is an interdisciplinary division which has its foundation of Quantum mechanics to Astrochemistry and luminescence dating.

Here I have worked on the topic “Payload for Low Velocity Sticking of Particles at Microgravity Conditions” under the supervision of Dr Bhalamurugan Sivaraman, Reader, Atomic Molecular and Optical Physics Division, Physical Research Laboratory, Ahmedabad, India.

Under the guidance of the mentor, science background study was carried out which included understanding the dust evolution and aggregation due to collision, selection of target material and designing of impactor system for the experiment. The project involves visualization and observation of aggregation of dust particles size ranging from (0.01-0.1mm) to centimetre in diameter under microgravity condition due to low velocities collision of particles. This experiment enables to understand science behind the planet formation in the protoplanetary disk. A simple payload model has been proposed and the components and the instruments needed for the experiment is suggested. From the study and observation of the images of dust collision, a better understanding of the dust evolution can be made.

Internship at PRL assisted me to acquire and improvise my abilities and knowledge and able to explore the research environment working as a team. This internship has laid a strong base for my future professional life.

Once again, I am so grateful to the Mason family for selecting me for the travel grant.

Thank You,

Shanthini K