

**Abstract for 11th Low Cost Planetary Missions Conference
June 9-11, 2015, Berlin, Germany**

Next Generation Dust Astronomy

Srama, R., IRS of University Stuttgart; Cosmic Dust Science Team, var.

Dust Astronomy is a new research field investigating remote objects by the analysis of dust particles travelling over space and time. Dust grains are born in stars (interstellar dust), at small bodies (comets, asteroids), in planetary rings and on the surface of small moons. Of highest interest are particles originating by active processes from the interior of moons like Io or Enceladus. This allows remote observations of moon interiors by the compositional analysis of ensembles of micron or submicron dust particles, far away from their sources. Furthermore, moon surface compositions can be derived by the analysis of the ejecta cloud generated by primary impacts (micrometeoroids). The dynamical analysis of the dust particle trajectories provides information about the dust-magnetosphere interaction, either in planetary magnetospheres or in the IMF. Specific science targets are therefore the measurement of the interstellar dust flow through our solar system, the lunar dust cloud, the moons of Jupiter (Europa, Ganymed) and Saturn (Enceladus) and the unexplored outer planetary ring systems. Here, we present the latest developments in dust spectroscopy instruments, capable to perform high-resolution compositional analysis of microparticles.