Geophysical Research Abstracts
Vol. 14, EGU2012-13534-2, 2012
EGU General Assembly 2012

Status of dust measurements by the Student Dust Counter

M. Horanyi (1), J. Szalay (1), and A. Poppe (2)

(1) U. of Colorado, LASP and Physics, Boulder, United States (horanyi@colorado.edu, 303 492 6946), (2) Space Sciences Laboratory, University of California, Berkeley, California, USA

The Student Dust Counter (SDC) experiment of the New Horizons Mission is an impact dust detector designed to map the spatial and size distribution of dust along the trajectory of the spacecraft across the solar system. The sensors are thin, permanently polarized polyvinylidene fluoride (PVDF) plastic films that generate an electrical signal when dust particles penetrate their surface. SDC is capable of detecting particles with masses $m \geq 10^{-12}$ g, and it has a total sensitive surface area of about 0.1 m^2, pointing most of the time close to the ram direction of the spacecraft. SDC provides the first dust measurements beyond 18 AU, where the Pioneer sensors stopped working. After the Pluto-Charon fly-by, SDC will continue to measure dust on in the Kuiper Belt. These observations will advance our understanding of the origin and evolution of our own solar system, and allow for comparative studies of planet formation in dust disks around other stars. This talk will briefly review the SDC instrument, the most recent data, and the constraints on the dust production rate in the Kuiper Belt, based on SDC observations and Pioneer. We will also make predictions for the Cassini spacecraft for the detection of dust originating from the Kuiper Belt.