Geophysical Research Abstracts
Vol. 14, EGU2012-11671, 2012
EGU General Assembly 2012

Polarimetry of Comet 9P/Tempel 1 around the epoch of the Deep Impact Event

G. P. Tozzi (1), S. Bagnulo (2), H. Boehnhardt (3), and L. Kolokolova (4)

(1) INAF, Osservatorio Astrofisico di Arcetri, Firenze, Italy (tozzi@arcetri.astro.it), (2) Armagh Observatory, Armagh, UK, (3) Max-Planck-Institut fuer Sonnensystemforschung, Katlenburg-Lindau, D, (4) University of Maryland, College Park, MD, USA

We present imaging and spectro-polarimetric observations of comet 9P/Tempel 1 obtained before and after the epoch of the Deep Impact event using the FORS1 and SoFI instruments of the ESO La Silla-Paranal Observatory.

We obtained narrow-band linear polarisation in imaging mode and low resolution linear and circular spectro-polarimetry in the visible wavelength range, and broadband linear polarisation in imaging mode in the near-IR. Due to the adverse temporal phasing of our post-impact observations, we found only marginal indications for DI-induced effects in the polarimetric data. Namely, we found slightly negative spectral slope in linear spectro-polarimetry, and, comparing imaging polarimetry taken before and after impact, we found a moderate change of the overall spatial gradient in the canonical coma sectors. Otherwise, our polarimetric results characterise the persisting coma activity. We measured a global 7.3% linear polarisation, which is typical for dusty comets. The linear polarization in the coma decreases with distance from the nucleus, which might be related to changing grain properties. A small fraction (0.2%) of circular polarisation was detected, which can be entirely interpreted in terms of cross-talk from linear polarisation. Therefore the actual circular polarisation of Comet 9P/Tempel 1 appears consistent with zero.