

**DUST INVESTIGATIONS WITH DUST FLUX MONITORING INSTRUMENT ON STARDUST-NEXT MISSION TO TEMPEL 1 COMET.** T. Economou<sup>1</sup> and the Dust Science Team, <sup>1</sup>University of Chicago, 933 East 56th Street, Chicago IL 60637 (tecon@tecon.uchicago.edu).

The STARDUST spacecraft shortly, after delivering the Space Capsule with precious cometary material back to Earth on January 15, 2006, was prevented from entering the Earth's atmosphere and placed on an orbit around the sun. The spacecraft was still in a very good condition and with all the payload instruments working nominally. It still had enough fuel for controlling and pointing it to a different target. In 2007 NASA has accepted a Mission of Opportunity proposal (with Joe Veverka from Cornell University as a PI) to reuse the STARDUST spacecraft and send it to Tempel 1 comet.

If everything will go according to the established plan, the scheduled flyby with comet will occur on February 14, 2011 with the closest approach distance of 200 km from the surface of the comet. It is expected that the Dust Flux Monitoring Instrument (DFMI) will obtain the dust particle flux and the mass distribution of particles that emanate from the comet nucleus. The DFMI was periodically checked out throughout the duration of the mission by performing the internal pulse calibration and seems to be in excellent condition. We expect to see results similar to those that we obtained from the STARDUST encounter with comet Wild 2 in 2004 [1].

**References:** [1] Anthony J. Tuzzolino, Thanasis E. Economou, Ben C. Clark, Peter Tsou, Donald E. Brownlee, Simon F. Green, J. A.M. McDonnell, Neil McBride, Melusine T.S.H. Colwell, Dust measurements in the coma of comet 81P/Wild 2 by the Dust Flux Monitor Instrument, *Science*, Vol 304 (2004) pp. 1776-1780.