

# **The fragmentation of porous dust in cometary comae due to the internal gas pressure**

T. Minato (1) and I. Mann (1)

(1) Institut fuer Planetologie, Westfaelische Wilhelms-Universitaet (imann@uni-muenster.de)

In-situ observations of the Dust Flux Monitor Instrument on Stardust showed the variations of dust flux and size distribution. One of the possible interpretations of the data is the occurrence of dust fragmentations. Moreover high spatial resolution observations show variations of dust light scattering properties in cometary comae, which also imply dust fragmentations. The dust fragmentation has also been considered as one of the proposed mechanisms to produce an extended source of gas in comae. The existence of extended sources has been confirmed by both in-situ and remote observations. We investigate the possibility of dust fragmentation due to the gas pressure that built up inside the porous dust. For this we carry out model calculations to simulate the heating of a mixture of ice and dust. The model takes into account the gas leaking through porous dust material and the heat transfer within porous dust. Discussion is given on whether dust fragmentation due to the gas pressure is plausible or not.