



## **In-situ cometary dust particle analysis with ROSETTA/COSIMA next to comet 67P/ Churyumov-Gerasimenko**

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ESA's mission ROSETTA escorted comet 67P/Churyumov-Gerasimenko from August 2014 to September, 2016. The COmetary Secondary Ion Mass Analyser (COSIMA) is a dust particle composition analyzing instrument onboard ROSETTA. COSIMA has collected cometary particles on metal targets in the inner coma, stored the particles at about 10°C and identified the collected particles by optical microscopy and analysed their composition by secondary ion mass spectrometry. We report on the present status of the analysis of the morphology and composition of the captured dust particles. The porous dust particles contain large carbon-rich molecules as well as mineral compounds [1-3]. Most particles are fragmented on impact [4-7]. The mean dust particle density, as derived from the impact fragmentation patterns and models for porous, ice-free matter [7], is less than the average 67P nucleus density which is made out of refractory and icy matter [8]. The dust particles collected in the inner coma of comet 67P allow us to study the fragile cometary matter without major alterations, e.g. high temperature heating. The particle composition is heterogenous and similar to the elemental composition of comet Halley and might be linked to the low density fraction of the interplanetary dust particles (IDPs).

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