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Elemental surface composition of comet 67P grains (Rosetta) and of carbonaceous chondrite meteorites - characterized by multivariate mass spectral data (COSIMA)

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Dust grains have been collected near the comet 67P/Churyumov–Gerasimenko by the time-of-flight secondary ion mass spectrometer (TOF-SIMS) COSIMA on board of the Rosetta spacecraft. The measured mass spectra contain information about the inorganic and organic composition of the surface of the grains. For a comparison of this cometary material with carbonaceous chondrite meteorites, a twin laboratory instrument of COSIMA has been used to obtain mass spectra from grain surfaces of the meteorites Allende, Lancé, Murchison and Renazzo. Multivariate data analyses, based on signals from selected ions, indicate similarities of the chemical composition of the surfaces of different sample groups, as well as the heterogeneity of the grains.

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