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Interstellar Dust as seen by the Cassini Cosmic Dust Analyzer.

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In situ analysis of cosmic dust enables the dust composition to be linked to the dynamical properties of the particle and hence to its source.. Our aim is to discover impact signatures of interstellar dust (ISD) particles onto the Cosmic Dust Analyzer (CDA) onboard the Cassini spacecraft. A sophisticated evaluation of the in situ CDA mass spectra requires laboratory calibration, which is performed by preparation of submicron- to micron sized natural dust analogues. Since a significant fraction of the ISD population are silicates with mainly ferromagnesian composition, we prepared pyroxene samples from natural rocks as cosmic dust analogues, which were shot with a 2MV Van de Graaff accelerator at the Heidelberg dust accelerator facility with speeds between 1 km/s and 50 km/s onto the CDA flight spare instrument. For ensuring the correct association of the structures visible within the CDA spectra, experiments with a high resolution mass spectrometer, the Large Area Mass Analyzer (LAMA), have been conducted as well. We here present the results of pyroxene shots onto the CDA and onto LAMA.

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