



Dust impact charge generation measured by Cassini's Dust Instrument, CDA.

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The Cosmic Dust Analyzer, CDA, onboard the Cassini spacecraft has recorded many ten thousand dust impacts during the first crossings of Saturn's E ring plane. CDA is an impact ionization detector that measures the charge released from a hypervelocity impact of typically micron sized dust particles. The instrument has an impact target of 0.1 m² sensitive area and a wide field-of-view. Dust impact charges released range from 10⁻¹⁵ to 10⁻¹¹ C. The impact rates range from 10⁻³ to 1 impact per second during E-ring crossings currently having distances from 5 to 8 R_S (R_S Saturnian radius) to Saturn. Because of the roll of the spacecraft during some crossings CDA scans a wide range of impact directions. Both the charge amplitude distribution and the impact rate is determined at various positions in the E ring and at different pointing directions.