

## Compositional 3-D mapping of icy dust grains in the E-ring

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### Abstract

Compared to the inner rings, which are very narrow and well defined around the equatorial plane of Saturn, the E-ring is very diffuse with no strict boundaries because many dust particles, moving on various inclined orbits around Saturn, are blurring the structural limits of the ring. Cassini's Cosmic Dust Analyser (CDA) provides a large number of time-of-flight mass-spectra of dust impacts recorded during a planar E-ring passage in 2015, which extract the chemical composition of dust grains. During these measurements the bore-sight of the CDA was periodically changed in vertical direction to allow the examination of not only the radial but also the vertical compositional distribution of the incoming dust grains. Here we present the first radial and vertical, compositional profiles of dust grains within the E-ring and discuss the implications.