



## **The Zodiacal Dust Cloud Populations at Saturn: signs of Centaurs activity ? The point of view of CASSINI-CDA**

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We present a preliminary analysis of the entrance charge grid (EG) subsystem data of the CASSINI-Cosmic Dust Analyzer (CDA). This subsystem can detect micron to tens of micron-sized particles through the electrostatic charge induced on a grid of conductive wires located at

the entrance of the CDA instrument. An analysis of the induced electric signals on the wires allow us to retrieve the direction and speed of dust grains with a precision higher than any other CDA subsystems. We have identified and analyzed all CDA-EG events identified at 2 Saturn

Radii from Saturn's equatorial plane and all events beyond Titan's orbit, looking specifically for the signature of particles on hyperbolic orbit with respect to Saturn (and hence, of exogenous origin). The exogenous origin could be confirmed for a fraction of the EG events and

their heliocentric orbital elements derived, at the time they crosses the Hill's sphere boundary, by performing a backward propagation of their trajectory in the Saturn's system. The values of

the grain orbital elements suggest a connection with parent bodies like Centaurs objects, while Jupiter Family Comets can only explain a minority of the detected dust grains. Centaur objects have been recently the focus of observation campaigns, as cometary-like activity was identified for a few of them, and hence, are a potential significant source of dust in the outer Solar System.

We discuss our results, trying in particular to understand how other expected dust grain populations like Kuiper belt collisional products could also contribute to our data set.