

Dusty Plasma near Saturn's moon Enceladus and E ring

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Saturn's E ring consists of the small sized grains of about micro meters. They are electrically charged and often effected by the surrounded charged particles. One of the Kronian icy moon Enceladus expels a large amount of dust and neutrals from its south pole and forming a plume of dust, neutral and plasma in the southern hemisphere of the moon.

We present the Cassini observations of the plasma near the Enceladus plume showing that the negatively charged dust and the surrounding plasma are strongly coupled. Observations indicate that the electron densities drop out due to their attachment to the nano mater sized dust and the coupling of the dust grains and the plasma is in a state of so called 'dusty plasma'.

Dusty plasma have not been observed in space except a few rocket based observations in the Earth's atmosphere. We will discuss the dust and plasma behavior around the Enceladus and the E ring.