

Saturn's E ring: sources and dynamics

U. Beckmann (1), S. Kempf (1), R. Srama (1), G. Moragas-Klostermeyer (1), S. Helfert (1), E. Grün (1,2)

(1) Max-Planck-Institut für Kernphysik, Heidelberg, Germany, (2) University of Hawaii, Honolulu, USA

Saturn, the second largest planet of our solar system is distinguished by a pronounced ring system. Its diffuse E ring is the largest planetary ring of our solar system and extends from three to at least nine Saturnian radii (Saturnian radius $R_S = 60330\text{km}$).

The morphology of the ring is due to the production and loss processes of the ring particles. A key process is the emission of fresh particles by dust producing ring moons. A comparison between numerical simulations of the long term evolution of the ring particles with in-situ measurements by the Cosmic Dust Analyzer (CDA) on board the spacecraft Cassini will provide estimates for emission rates.

Here we present model calculations for dust producing icy ring satellites. First estimates for their production strength will be discussed.