



The energetic charged particle environment of Saturn's rings

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The LEMMS detector of Cassini's MIMI instrument has, since July 2004, been observing the energetic charged particle environment of the Saturnian system. Here, we present an overview of observed signatures in the LEMMS data caused by the planet's rings, and we discuss their causes. We shall also briefly describe the information that can potentially be gleaned about the ring material from these observations. The spacecraft's first periapsis pass, during Saturn orbit insertion, included unique sampling of the environment near the planet's main rings, revealing a dramatic drop in particle fluxes in this region. Further passes have allowed Cassini to sample regions magnetically-connected to the G-ring. A persistent proton flux drop is associated with this ring, together with more transient features. Finally, the domain of the E-ring has been extensively sampled, and we address this feature's effects on the inner magnetosphere.