



## **Analysis of inter - calibrated electron observations in Saturn's inner magnetosphere**

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**Abstract.** The Cassini instrumental suite dedicated to Magnetosphere and Plasma Science at Saturn allows measurement of ion and electron plasma distribution functions over a broad range of energies. Based on a careful intercalibration of the Cassini Plasma Spectrometer (CAPS) and of the Magnetospheric Imaging Instrument (MIMI) we present a study that combines all the available electron plasma observations for selected orbits (including SOI). The CAPS electron spectrometer (ELS) measures the velocity distribution function of the cold and suprathermal components (0.6 eV to 28.259 keV) of the magnetospheric plasma. The Low Energy Magnetospheric Measurement System (LEMMS) of the MIMI instrument covers data a higher energy range (0.015 MeV to 0.884 MeV), overlapping ELS one at lower energies. We first compute composite particle energy spectra in order to produce an empirical model of the electron populations observed in Saturn's inner magnetosphere (< 15 Rs). We then tentatively derive a comprehensive set of electron macroscopic parameters in these regions and compare them to those obtained from Voyager observations.