

## Cold ions and electrons in Saturn's magnetotail

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### Abstract

The Cassini mission has provided a wealth of data on Saturn's magnetosphere and the magnetotail was explored with a set of deep tail orbits in 2006. Studies of Saturn's magnetotail have focused on studying the sub-corotating plasma in the plasma sheet [Arridge et al., 2009; McAndrews et al., 2009], plasmoid and TCR signatures [Jackman et al., 2007; Hill et al., 2008; Jackman et al., 2009], the magnetic field in the magnetotail [Arridge et al., 2009; Jackman and Arridge, 2011; Arridge et al., 2012] and the response of the magnetotail to solar wind compressions [Jackman et al., 2010]. In this poster we present observations, from ~2200 hours Saturn local time at 30  $R_s$  in Saturn's magnetotail, where cold ions and electrons are observed in the lobe directly adjacent to the plasma sheet. On entering the lobe the plasma is dispersed to low energies and over the following six hour period these cold ions and electrons exhibit an additional dispersion, reducing in energy with time. At the end of the interval the spacecraft re-enters the plasma sheet and returns to a warm plasma environment typical of the plasma sheet. In this poster we present these observations and interpret the event.