



RSPP seminars

Dr. Anne Wellbrock

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“Observations of negative ions at Titan using the Cassini CAPS Electron Spectrometer (CAPS-ELS)”

The discovery of heavy organic anions by Cassini’s CAPS Electron Spectrometer (ELS) in Titan’s ionosphere was an unexpected result of the Cassini mission (Coates et al, 2007, Waite et al, 2007); a complete reconsideration of chemical processes in this enigmatic atmosphere was necessary as a result. These negative ions can be associated with complex hydrocarbon and nitrile processes which are linked to haze formation at lower altitudes. Cassini’s CAPS ELS observed negative ions during Titan encounters at altitudes below 1400 km. The ions can reach masses over 13,000 amu/q (Coates et al., 2009), while recurring peaks in the mass spectra can be used to identify different mass groups as reported by Coates et al. (2007) and Wellbrock et al. (2013). Studying density and mass trends of these groups helps to identify controlling factors of the production and destruction mechanisms, and ultimately to improve our understanding of how organic macromolecules can be produced by naturally occurring abiotic processes.



Wednesday, March 22nd at 2 pm in Physics LTD