



## **Langmuir Probe Ion density and spacecraft potential analysis for low velocity ions at comet 67P**

Fredrik Leffe Johansson (1), Erik Vigren (1), Anders Eriksson (1), Pierre Henri (2), and Xavier Vallières (2)

(1) Swedish Institute of Space Physics, Uppsala, Sweden (frejon@irfu.se), (2) Laboratoire de Physique et Chimie de l'Environnement et de l'Espace, France

The RPC-LAP Langmuir Probe instrument on-board Rosetta monitored the evolution of the plasma around comet 67P/Churyumov-Gerasimenko for more than two years. As the neutral gas density was too low to support efficient electron cooling, the electron temperature remained around 10 eV which drove the spacecraft to negative potential of the same order, complicating the interpretation of the LAP data. To support data interpretation, spacecraft-plasma interaction simulations including simulated I-V curves were carried out using the SPIS code package and we find that the often highly negatively charged (-20V) Rosetta spacecraft accelerate ions towards the spacecraft. If not taken into account, this could lead to an overestimate of the ion speed in the I-V curves. The spacecraft-plasma interaction result is then applied to interpret and constrain cometary ion velocities and densities at perihelion in August 2015.