



## **Steepened magnetosonic waves at the proton cyclotron frequency and SLAMs upstream from the Martian bow shock**

Christian Mazelle (1) and Cesar Bertucci (2)

(1) Centre d'Etude Spatiale des Rayonnements, UPS-CNRS, 9 Avenue du Colonel Roche, Toulouse, 31400, France (christian.mazelle@cesr.fr), (2) Institute for Astronomy and Space Physics - IAFE, Buenos Aires, Argentina

The observation of low frequency waves at the cyclotron frequency of an ion species in the vicinity of a solar system body surrounded by a neutral atmosphere or exosphere reveals its micro-scale interaction with the solar wind. We present results on the nonlinear waves observed upstream from the Martian bow shock, steepened magnetosonic waves and slams (short large amplitude magnetic structures) in the solar wind and the foreshock of Mars. Comparison with similar waves observed inside the Earth's foreshock or around comets is discussed.