



## **Turbulent diffusion of mirror mode structures at Venus and Comet P/Halley**

Daniel Schmid, Martin Volwerk, Yasuhito Narita, Ferdinand Plaschke, Wolfgang Baumjohann, Zoltan Vörös, and Tielong Zhang

Austrian Academy of Science, Space Research Institute, Graz, Austria

We apply a turbulent diffusion model of mirror mode structures to magnetosheath magnetic field fluctuations at unmagnetized solar system bodies (Venus and comet P/Halley measured in-situ by Venus Express and Giotto). The model enables us to estimate the distance of the observed structure to the location of the mirror mode source, which we then compare with the observed distance to the bow shock. Assuming the model works properly for unmagnetized bodies, for Venus we find that the modeled distances to the excitation location fit well with the observed distances to the bow shock, i.e. the scenario of mirror mode excitation at the bow shock is valid for Venus. However, for comet P/Halley we find a discrepancy in observed and modeled distances, suggesting a local production of mirror mode structures in the cometary magnetosheath, most likely by pick-up ions. The presented research has received funding from the European Community's Seventh Framework Programme ([FP7/2007-2013]) under grant 313038/STORM and partial support from the Austrian Science Fund (FWF) under grant agreement P25257-N27.