



The Complex Structure of Magnetic Field Discontinuities in the Turbulent Solar Wind

Antonella Greco, Silvia Perri, Sergio Servidio, and Pierluigi Veltri
(antonella.greco@fis.unical.it)

Using high resolution Cluster satellite observations, we show that the turbulent solar wind is populated by magnetic discontinuities at different scales, going from proton down to electron scales, whose structure resembles the Harris equilibrium profile in plasmas.

Using a multi-dimensional intermittency technique, we establish that these structures are connected through the scales. We show that observations are consistent with a scenario where many current layers develop in turbulence, and where the outflow of these reconnection events are characterized by complex sub-proton networks of secondary islands, in a self-similar way, confirming that “reconnection in turbulence” and “turbulent reconnection” coexist in space plasmas.