

MHD TURBULENCE AND MAGNETIC STRUCTURES IN THE SOLAR WIND

**R. Bruno¹, R. D'Amicis¹, B. Bavassano¹, L. Sorriso-Valvo², V.
Carbone³, E. Pietropaolo⁴ and A. Balogh⁵**

¹*INAF-Istituto Fisica Spazio Interplanetario, 00133 Roma, Italy,*
²*LICRYL - INFN/CNR, 87036 Rende (Cs), Italy,* ³*Dipartimento di Fisica*
Università della Calabria, 87036 Rende (Cs), Italy, ⁴*Dipartimento di*
Fisica Università di L'Aquila, 67010 Coppito (Aq), Italy, ⁵*The Blackett*
Laboratory, Imperial College, London SW7 2BZ, UK

This presentation aims to give an overview on recent findings on interplanetary MHD fluctuations derived from in-situ observations in the 3D heliosphere. The role of Alfvénic fluctuations and coherent structures will also be discussed and their radial and latitudinal behavior described, with particular emphasis placed on the role that magnetically dominated fluctuations have within solar wind turbulence. This report will be enriched by new results obtained from a recent alignment between Earth and Ulysses. In fact, at the end of August 2007 this radial alignment was within a few degrees. Spacecraft located at the libration point L1 and Ulysses, separated by 0.4AU, were lucky enough to observe the same nice high velocity stream. This unusual event gave us the opportunity to attempt a study on the radial evolution of solar wind turbulence between 1 and 1.4 AU releasing the hypothesis of stationarity of the source region adopted in previous studies performed on Helios observations.