



From coherent structures to turbulence spectra

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Turbulence in the solar wind has been attracting attention since first in-situ measurements in the Heliosphere. Still a lot of open questions remain. In particular, the nature of turbulence around plasma kinetic scales, where self-similarity breaks down and no-power law behaviour of the turbulent spectrum is expected. It is known that approaching these small scales, Probability Distribution Functions (PDF) of magnetic fluctuations deviate strongly from the Gaussian distribution. This is called intermittency and is usually interpreted as presence of coherent structures. Here, using magnetic field waveforms and their wavelet coefficients, we study the nature of these intermittent events. We propose as well a universal description of magnetic fluctuations PDF using a four-parameter function and we describe the evolution of this parameters with increasing frequencies. Using two different approaches we establish the connection between intermittency and the evolution of the turbulent spectrum at ion scales. Finally the relationship between intermittency and ion temperature is discussed.