

# INDICATORS OF SELF-ORGANISED CRITICALITY AND THE SEARCH FOR UNIVERSALITY IN SOLAR WIND TURBULENCE

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There is considerable current interest in the relationship between turbulence and critical phenomena. In particular several recent studies of inverse cascade models, shell models and reduced MHD turbulence models predict the same power law probability densities  $D$  for dissipation burst sizes  $s$ , durations  $t$  and inter-burst intervals  $\tau$  in turbulent systems, as those previously taken as indicators of self-organised criticality. Furthermore an identity between power fluctuations in laboratory fluid turbulence and magnetisation fluctuations in a 2D spin model of a critical system has recently been demonstrated, the so-called “universal fluctuations”. Here we show for the first time  $D(s)$ ,  $D(t)$  and  $D(\tau)$  for the Earth-Sun component of the solar wind Poynting vector. We find them to be power laws in all 3 quantities. We investigate whether “universal fluctuations” are present in this and other solar wind and magnetospheric indices. We discuss the implications for SOC theories of plasma turbulence.