Abstract Submitted
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Determination of anisotropic magnetic energy spectra using Ulysses data[1] SEAN OUGHTON, Mathematics Dept, University of Waikato, New Zealand, TIMOTHY S. HORBURY, Blackett Laboratory, Imperial College London, UK, MIRIAM A. FORMAN, Stony Brook University, Stony Brook, NY — Observational results from a wavelet analysis of Ulysses magnetic field fluctuations are presented, indicating that the magnetic energy spectrum in the solar wind is anisotropic. The wavelet technique enables accurate scale-dependent determination of the local magnetic field direction, $\bar{\mathbf{B}}$. The frequency power spectrum of magnetic field fluctuations is calculated, as a function of the angle $\theta_{\bar{B}}$ between $\bar{\mathbf{B}}$ and the radial (i.e., measurement) direction. Nine different 30-day intervals (of 1 second data) are analyzed, and in each case the spectral slope is $\approx 5/3$ for angles not "close" to the field-parallel direction (i.e., 0°), but transitions smoothly to ≈ 2 as $\theta_{\bar{B}} \to 0^\circ$. Discussion of these results in terms of anisotropic models of MHD turbulence is also presented.

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Sean Oughton
Mathematics Dept, University of Waikato, New Zealand

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