

Abstract Submitted
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Simulation of Density Fluctuation Intermittency in Decaying Kinetic Alfvén Wave Turbulence¹ KURT SMITH, PAUL TERRY, Center for Magnetic Self-Organization, University of Wisconsin-Madison — We investigate the possibility that the distance-to-source scaling of the temporal width of pulsar signals is caused by intermittency in the turbulent density fluctuations of the interstellar medium. We simulate the small scales near the ion gyroradius where density fluctuations reach equipartition with the turbulent magnetic field in a kinetic Alfvén wave (KAW) cascade¹. Examination of decaying KAW turbulence using a fluid model establishes the presence of strong intermittency in the current fluctuation field, and a profile of Gaussian curvature of magnetic field that supports the theoretical prediction that the intermittent current filaments avoid turbulent mixing by refracting turbulent KAW activity away from filaments. The theory predicts correlated structures in electron density. These are observed but their intermittency is less pronounced. The role of parameter values, including the ratio of resistivity to density diffusivity, and the initial spectrum are explored to determine the effect on intermittency. ¹P.W. Terry, et al., Phys. Plasmas **8**, 2707 (2001).

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