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**Electron Density Fluctuations in Kinetic Alfvén Wave Turbulence**

KURT SMITH, PAUL TERRY, University of Wisconsin-Madison, Center for Magnetic Self-Organization — Electron density fluctuations become dynamically active in Kinetic Alfvén wave turbulence at small length scales — around ten times the ion-sound gyroradius and smaller. The density gradient is shown to have non-Gaussian statistics with large kurtosis, and turbulent fields within this regime have long-lived sheet and filamentary structures that may be responsible for the enhanced statistical tails. We present global statistics and local characterizations of these long-lived structures. The gradient field remains non-Gaussian even when varying the damping parameters over a large range of values. The primary structure morphology changes from filaments to sheets as the dominant damping is in either diffusivity or resistivity, respectively. We investigate the implications of the non-Gaussian statistics of the density fluctuations for interstellar pulsar scintillation, observations of which have provided evidence of non-Gaussian fluctuations in electron density.

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