

Abstract Submitted
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Gyrokinetic Study of Intermittency in Interstellar Turbulence G.

LAU, P.W. TERRY, M.J. PUESCHEL, University of Wisconsin, Madison — The temporal broadening of pulsar signals from scintillation is dependent on the distance to the pulsar, but the exact scaling cannot be recovered from electron density fluctuations that follow Gaussian statistics - Lévy statistics are required [S. Boldyrev and C. Gwinn, *Astrophys. J.* **584**, 791 (2003)]. We investigate the possibility that interstellar turbulence produces Lévy statistics in electron density fluctuations, focusing on the intermittency associated with current filaments and sheets in decaying gyrokinetic turbulence at ion gyroradius scales. It has been shown that the proper distributions arise in a 2D fluid model for kinetic Alfvén turbulence [P. W. Terry and K. W. Smith, *Astrophys. J.* **665**, 402 (2007)]. Using the GENE code, we continue this work by confirming that gyrokinetics returns similar results. We then extend to 3D and show the effects of collisions on the emerging structures.

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