

Abstract Submitted
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Density Fluctuations in the Dissipation Range of Interstellar Turbulence STEVEN SPANGLER, University of Iowa — The inertial subrange of MHD turbulence terminates in dissipation on spatial scales of order the ion inertial length, or smaller. In the solar wind and solar corona, fluctuations on these scales have properties of kinetic Alfvén waves. This is inferred from the enhanced compressibility of those fluctuations, as measured by radioastronomical observations of the scattering of radio waves by the density fluctuations. We discuss similar radioastronomical propagation measurements of turbulence in photoionized interstellar plasmas (HII regions). These measurements show no evidence of enhanced compressibility on the ion inertial scale. Instead, there is evidence for a simple spectral break, consisting of a steepening of the density spectrum on the ion inertial scale. This result suggests a possible difference between MHD turbulence in the corona/solar wind and interstellar turbulence. A possible reason for this difference is the much higher value for β (15-30) in the interstellar plasmas.

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