Magnetic Fluctuations Associated with Electrostatic Drift-Wave Turbulence

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The Helimak is an experimental realization of a simple sheared cylindrical slab. In the region with a density gradient in unfavorable magnetic curvature, a spectrum of saturated drift-wave turbulence develops [Perez, *et al*., Phys. Plasmas 13, 032101]. Although this is electrostatic turbulence at low β, broadband magnetic fluctuations have been observed in the system. The magnetic fluctuations have a moderate correlation with the density fluctuations, the n,B radial correlation length is similar to the n,n correlation length, and the frequency spectra are similar. The amplitudes of magnetic and density fluctuations are generally proportional. The magnetic fluctuations persist even for $(m_i/m_e)\beta_e<1$.

Characteristics of the magnetic fluctuations, including absolute amplitude, will be presented for a wide range of experimental conditions, including conditions for which the drift waves are strongly reduced by applied flow shear. The results are also compared with theory [Dahlburg, *et a*l., this meeting].