

Abstract Submitted  
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**Observation of large-scale velocity fluctuations in the Princeton MRI experiment** A.H. ROACH, Princeton Plasma Physics Laboratory, E.J. SPENCE, E.M. EDLUND, P. SLOBODA, H. JI — The Princeton MRI Experiment is a modified Taylor-Couette device with a GaInSn working fluid used for the study of rotating MHD flows. A recently-installed Ultrasound Doppler Velocimetry (UDV) system allows the measurement of internal fluid velocities. Starting from both hydrodynamically stable and hydrodynamically unstable background flow states, large-scale, large-amplitude, coherent, nonaxisymmetric velocity fluctuations have been observed when a sufficiently strong magnetic field is applied. The presence and saturated amplitude of these fluctuations is dependent on both rotation speed and magnetic field strength. The fluctuations are absent in regimes where the magnetorotational instability is expected to be observed. Theoretical investigations of these fluctuations using linear stability analysis and nonlinear 3-D simulations are ongoing. Measurements from the UDV diagnostic and from external magnetic diagnostics will be presented.

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