Abstract Submitted
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Laboratory Magnetic Turbulence Studies at the Bryn Mawr Plasma Laboratory[1] CARLOS A. CARTAGENA-SANCHEZ, DAVID A. SCHAFFNER, A. SLANSKI, M. SHEPARD, F. TAMBOLI, L. BAKER, Bryn Mawr College — The Bryn Mawr Experiment (BMX) at the Bryn Mawr Plasma Laboratory (BMPL) aims to study magnetic turbulence in a laboratory plasma wind-tunnel with the purpose of making comparisons to heliospheric, magnetospheric, and astrophysical turbulent systems. The magnetic turbulence is generated using a magnetized coaxial gun source to inject magnetic helicity into a 24cm by 2.7m long cylindrical flux-conserving chamber. The diagnostic section of the chamber includes an axial array of single-loop magnetic pickup coils at 1.3cm cadence along the axial direction. For a 180us window of stationary broadband magnetic, two-point correlations functions are computed from various pairs of probes to determine time-delay estimated velocity measurements as well as spatial decorrelation. From these decorrelation measurements and energy spectra, basic magnetic turbulence parameters of the plasma can be determined including magnetic spectral indices and the magnetic Reynolds number. Early density measurements using ion saturation current from a double Langmuir probe will also be shown. Effort is underway to model this experiment using a resistive MHD model within the Dedalus framework.

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