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Estimating the Taylor Microscale and Magnetic Reynolds Number Through Two-Point Correlations in a Turbulent Laboratory Plasma[1]
CARLOS A. CARTAGENA-SANCHEZ, DAVID A. SCHAFFNER, A. SLANKSI, M. SHEPARD, F. TRAMBOLI, L. BAKER, Bryn Mawr College — The Bryn Mawr Experiment (BMX) is a new experiment at the Bryn Mawr Plasma Laboratory (BMPL) investigating magnetic turbulence using the injection of helicity with a magnetized coaxial gun source into a flux conserving cylindrical wind-tunnel. This presentation represents the first BMX results of MHD turbulence properties. Here, spatial correlation analysis of magnetic fluctuations is used to estimate outer and inner scales of the inertial range of the energy cascade. With these estimates a magnetic Reynolds number is calculated. The spatial correlation scale and the Taylor microscale are used as the outer scale and inner scale respectively.

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