

Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Magnetic Probe Calibration for MHD Turbulence Studies Using a Power Amplifier L. E. FAHIM, D.A. SCHAFFNER, H.K. JOHNSON, C.A. CARTAGENA-SANCHEZ, Bryn Mawr College — Studying magnetic turbulence in the laboratory requires measurements of magnetic fluctuations at high frequencies, but probe diagnostics, such as magnetic pickup coils, can run into inductance issues at such high frequencies. Careful calibration is necessary to be able to report on the the proper scaling of power. B-dot probes and Hall effect sensors are used in the measurement of time varying magnetic fields. In the case of a B dot probe, current is induced in a coil as a result of the varying magnetic field. The coil then produces an output voltage that is proportional to dB/dt . The output voltage of a Hall effect sensor changes in response to the transverse force produced by the magnetic field. For measurements at the Bryn Mawr Plasma Laboratory, both B-dot probes and Hall effect probes are calibrated using an Accel Instruments TS250 power amplifier to drive current up to 2A from 100kHz to 10MHz.

Leyla Fahim
Bryn Mawr Coll

Date submitted: 14 Jul 2017

Electronic form version 1.4