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Development of a long pulse plasma gun discharge for magnetic turbulence studies DAVID SCHAFFNER, Bryn Mawr College — A long pulse ($\approx 300\ \mu s$) plasma gun discharge is in development at the Bryn Mawr College Plasma Laboratory for the production of sustained magnetized plasma injection for magnetohydrodynamic (MHD) turbulence studies. An array of eight 0.5 mF parallel capacitors are used to create a pulse-forming-network (PFN) with a plateaued current output of $\approx 50\ kA$ for at least 200 of the 300 μs pulse. A 24 cm inner diameter plasma gun provides stuffing flux fields at the stuffing threshold in order to allow for the continuous injection of magnetic helicity. Plasma is injected into a 24 cm diameter flux-conserving aluminum chamber with a high density port array for fine spatial resolution diagnostic access. Fluctuations of magnetic field and saturation current are measured using pickup probes and Langmuir probes respectively.

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