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Washer-Gun Plasma Source for Magnetic Reconnection Experiments on VTF[1] A. VRUBLEVSKIS, J. EGEDAL, W. FOX, N. KATZ, A. LE, M. PORKOLAB, PSFC, MIT — We present an electrostatic washer-gun plasma source for the Versatile Toroidal Facility (VTF). The gun will produce plasmas with densities on the order of 10^{18} m^{-3} and electron temperatures on the order of 10-20 eV. It will extend the range of configurations achievable on VTF since the present plasma production method is limited to configurations with strong toroidal magnetic fields, which are required for microwave-induced electron cyclotron resonant breakdown. The gun is based on the design developed by Sterling Scientific [1] with detailed operation described in [1, 2]. During the gun's operation gas is injected into a channel formed by a stack of alternating molybdenum and boron nitride washers with a molybdenum electrode washer at each end. A voltage from a capacitor bank is applied to these electrodes and breaks down the gas in the channel. The resulting plasma escapes the channel into the main chamber of the experiment. If available we will present data characterizing the argon plasma produced by the device.

[1] Fiksel G et al. Plasma Sources Sci. Technol. **5** (1996) 78

[2] Den Hartog D et al. Plasma Sources Sci. Technol. **6** (1997) 492

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