Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

2D Langmuir Maps of Kinked UW-RWM Plasma DAVID HANNUM, MATT BROOKHART, CARY FOREST, ROCH KENDRICK, GABRIEL MENGIN, CARLOS PAZ-SOLDAN, UW-Madison — The rotating wall machine is a linear screw-pinch built to study the role of different wall boundary conditions on the Resistive Wall Mode (RWM). Its plasma is created by a hexagonal array of seven electrostatic guns. The guns can be biased to discharge up to 1 kA of current each, firing independently or in tandem. The 20 cm diameter, 1.2 m long plasma column is held in place by a 500 G (max) axial guide field. A singletip Langmuir probe inserted from the opposite end of the chamber yields measurements of T_e, n_e and V_p in r and z. Though it is tied to the guns at the cathode end, the plasma column is free to slip over the anode end. At higher plasma currents, the kinking column oscillates past the probe tip. Ensemble averaging of the I-V curves is required to derive reliable Langmuir measurements for these plasmas. I will present 2D Langmuir profiles in configurations scanning the plasma current I_p, guide field B_z, and number of plasma sources (one gun / seven guns).

David Hannum

Date submitted: 16 Jul 2009 Electronic form version 1.4