Abstract Submitted
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Axially Inserted Magnetic/Langmuir Probe[1] DAVID HANNUM, W. BERGERSON, G. FIKSEL, C.B. FOREST, C. HEGNA, R. KENDRICK, S. OLIVA, J. SARFF, UW-Madison — A new probe has been designed to provide internal magnetic and Langmuir diagnostics throughout the rotating wall machine. The machine is a linear screw-pinch built to study the role of different wall boundary conditions on the resistive wall mode (RWM). Individual mode stability depends on the value of the safety factor at the plasma edge (q_a). The plasma is produced by an array of nineteen guns, creating a column one meter in length and up to 20 cm in diameter. The central guns in the array can be biased to individually discharge 1 kA of plasma current. Different instabilities are studied by changing the current and density profiles of the guns. But profile measurement has been limited to the top and bottom of the plasma column by radial port access. The new axially-inserted Q-Tip probe can travel along the entire span of the column. The Q-Tip combines ten pickup loops with four triplets of electrodes for simultaneous magnetic and Langmuir measurements. The edge a and safety factor q of the plasma can now be found for different instabilities seen along the column. This poster tracks the change of n_e, T_e, Φ_p, and q throughout the plasma.

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