

Abstract Submitted
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Floating Potentials of End Plates in the PFRC-2 Divertor Regions¹ JUSTIN COHEN, North Carolina State University, CHARLES SWANSON, Princeton Satellite Systems, EUGENE EVANS, Princeton Plasma Physics Laboratory, GABRIEL GONZALEZ, University of Puerto Rico, SAMUEL COHEN, Princeton University — Floating probes were used to measure key plasma parameters in the PFRC-2. Previous experiments in RMF-sustained discharges have shown heating of a minority electron population to $T > 300$ eV in the center cell (CC). To infer the density and energy of the fast electrons escaping the CC, we have measured the floating potentials and current to ground of a Ta disk in the Far End Cell (FEC), and a steel plate in the Source End Cell (SEC) located at the opposite axial end of the PFRC-2. At an RMF power of 70 kW, a floating potential of -1,300V was measured on the Ta disk, which implies electrons with temperature near 400 eV and a density greater than 5% of the bulk plasma in the FEC. The floating potentials were also used to characterize time-dependent behavior of the FEC electron density. When compared to data from the CC interferometer, there was strong agreement on fluctuations seen during electron decay. For RMF pulses near 10 ms and low initial filling pressures, *ca.* 0.4 mTorr, a staircase-like density decay was measured by the interferometer concurrent with potential steps seen on the Ta disk.

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