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Electron and ion currents to a planar probe oriented at an arbitrary angle to the magnetic field in a cesium Q machine plasma¹ MICHAEL J. MCKINLAY, SEAN M. HARDING, ROBERT L. MERLINO, University of Iowa — Current collection to a planar Langmuir probe in a magnetized Q machine plasma was investigated. The Q machine was operated in the single-ended mode with cesium ions having densities in the range of 10^{14} to 10^{15} m^{-3} , electron and ion temperatures, $T_e \approx T_i \approx 0.2$ eV, and magnetic fields from 0.06 T to 0.48 T. The probe was a disk of 9.5 mm diameter, and the side facing away from the plasma source was insulated. The effect of varying the angle between the magnetic field and the probe's surface normal vector on the ion and electron saturation currents and the floating potential was the focus of this study. The effect of varying the probe normal-magnetic field angle on the excitation and quenching of current-driven electrostatic ion cyclotron waves was also observed.

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