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Characterizing the edge properties of the HSX stellarator with a Langmuir probe and comparisons with EMC3-EIRENE A. AKERSON, A. BADER, F.S.B. ANDERSON, C.C. HEGNA, D.T. ANDERSON, University of Wisconsin — In this poster, temperature, density, and floating potential profiles in the HSX stellarator edge are presented. The presence of edge magnetic islands are generic to all stellarator configurations and play a prominent role in all aspects of edge physics. Measurements are conducted with a Langmuir probe equipped with a flapping mechanism, allowing for a 2 dimensional map of plasma parameters in an edge region that includes magnetic islands. Comparisons of the edge measurements with the predictions from the coupled edge code EMC3-EIRENE are made. Qualitatively measurements and predictions of the temperature profile are consistent. However, discrepancies exist with respect to the density profile. Floating potential measurements suggest the presence of an electric field in the island, a feature that is not present in the EMC3-EIRENE modeling.

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