

Abstract Submitted
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Measurement of Reynolds stress using Langmuir probes in the HSX stellarator¹ R.S. WILCOX, HSX Plasma Lab, University of Wisconsin, J.A. ALONSO, D. CARRALERO, CIEMAT, Madrid, Spain, D.T. ANDERSON, J.N. TALMADGE, F.S.B. ANDERSON, HSX Plasma Lab, University of Wisconsin — A compact Langmuir probe configuration has been designed and implemented in the edge of plasmas in the HSX stellarator to measure the Reynolds stress contribution to the momentum balance in multiple directions. Measurements are made of the fluctuating values of the radial and poloidal electric field, simultaneously with mach probe measurements of fluctuating values of the parallel flow. Experiments are performed in plasmas with an external bias applied as well as in the unbiased equilibrium case to study the effect of a large radial electric field on the fluctuations. The effect of quasi-helical symmetry on fluctuation-driven flows is also investigated by comparing measurements in an optimized magnetic configuration (QHS) to those in a configuration which has the optimization intentionally degraded (Mirror).

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