

Abstract Submitted  
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**Determination of radial electric field from Pfirsch-Schluter flows in a stellarator**<sup>1</sup> S. T. A. KUMAR, J. N. TALMADGE, T. J. DOBBINS, F. S. B. ANDERSON, K. M. LIKIN, D. T. ANDERSON, UW-Madison — Inboard/outboard asymmetry in the impurity ion parallel flows is measured in the HSX stellarator using Charge Exchange Recombination Spectroscopy (CHERS). This observation is consistent with the Pfirsch-Schluter flows predicted by neoclassical theory. The asymmetry of the flow is used to calculate the magnitude and direction of the radial electric field ( $E_r$ ), as well as the mean flow, using computed magnetic geometry factors. This method enables measurement of  $E_r$  near the core of the HSX plasma where the  $E_r$  obtained from the radial force balance equation has large uncertainties due to the relatively large width of the diagnostic neutral beam and the smaller plasma radius.

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