Abstract Submitted
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Deep Insertion Probe Measurements of the Hall Dynamo on MST[1] J.C. TRIANA, A.F. ALMAGRI, J.S. SARFF, J.P. SAUPPE, C.R. SOVINEC, UW-Madison, CMSO — Fluctuation-induced forces and stresses have been shown to be of importance in the self-organization processes of the RFP. These forces have been extensively studied in the edge of MST, ($\frac{r}{a} > 0.8$), and have shown that the MHD and Hall dynamo terms, ($\langle \tilde{\mathbf{v}} \times \tilde{\mathbf{b}} \rangle_{||}$ and $\langle \tilde{\mathbf{j}} \times \tilde{\mathbf{b}} \rangle_{||}$), are large but have opposite trends in their radial profiles. Our newest probe, designed to study the Hall term only, allows for deep insertion on MST and measures an extensive profile of the Hall dynamo. It's predecessor had obtained insertion up to $\frac{r}{a} \sim 0.6$ and found the radial profile of the Hall dynamo term had rich structure beyond the previously probed edge region. The new probe can access a minor radius of 0.5 and plasma parameters of the studied discharge are similar to those used in the two-fluid NIMROD simulations, making direct comparison with simulation results more straightforward.

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