Abstract Submitted
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Ion energy transport in MST[1] Z.A. XING, D.J. DEN HARTOG, S. KUMAR, M.D. NORNBERG, J.S. SARFF, Univ of Wisconsin, Madison, J.B. TITUS, Florida A&M University — The mechanisms governing ion energy transport must be identified and quantified in order to further understand non-collisional ion heating in the RFP. In improved confinement (PPCD) plasmas in MST, non-collisional ion heating appears to be small, making these the ideal baseline plasmas in which to investigate ion energy transport. Previous work has demonstrated that impurity ion particle transport is classical in PPCD plasmas. Characterizing both particle and energy transport in PPCD plasmas will serve as a first step in understanding the transition to strong non-collisional ion heating and stochastic transport in standard RFP plasmas. The energy transport model now being developed accounts for collisional equilibration between species, classical convective and conductive energy transport, and energy loss due to charge exchange collisions. This model uses MSTfit to provide equilibrium magnetic geometry, and a modified STRAHL code for particle profile and transport modeling. Previous measurements from sub-optimal PPCD plasmas with residual magnetic fluctuations are being analyzed with this model to examine the possible transition to stochastic transport.

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Zichuan Xing
Univ of Wisconsin, Madison

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