

Abstract Submitted
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Anomalous Impurity Ion Heating from Alfvénic Cascade in the RFP¹ VARUN TANGRI, P.W. TERRY, University of Wisconsin-Madison — Recent impurity ion measurements in MST suggest that collisional energy transfer from anomalously heated impurities might be able to account for the anomalously high temperature of bulk ions relative to electrons. An anomalous heating mechanism for impurities must still be uncovered. However, mechanisms proposed for anomalous bulk ion heating that have met difficulty in explaining bulk ion temperature, may work better for impurities. Previous work² calculating the heating of bulk ions by gyro and Landau resonances with turbulent fluctuations cascading from unstable tearing modes is extended to impurity species measured in MST. The heavier mass of impurities allows gyro-resonant heating at lower frequencies where more energy is present in the fluctuations. Impurity heating rates are calculated for impurities found in MST and compared with observed rates inferred in the impurity temperature rise during sawtooth events. ²N. Mattor, et al., Comments Plasma Phys. Controlled Fusion **15**, 65 (1992).

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