Abstract Submitted for the DPP12 Meeting of The American Physical Society

Neutral Beam Heating Of Reversed Field Pinch Plasmas In MST J. WAKSMAN, J.K. ANDERSON, M.D. NORNBERG, University of Wisconsin-Madison, D. LIU, University of California-Irvine, G. FIKSEL, University of Rochester, H. SAKAKITA, National Institute of Advanced Industrial Science and Technology, V.I. DAVYDENKO, A.A. IVANOV, N. STUPISHIN, Institute of Nuclear Physics, Novosibirsk, Russia — Thomson scattering measurements detect statistically significant heating of electrons due to neutral beam injection (NBI) in enhanced confinement plasmas in the MST. Heating is observed to be approximately  $100\pm50$  eV in the core of 200 kA plasmas with a line-averaged electron density of 0.5  $x \ 10^{13} \text{ cm}^{-3}$ . This is the first definitive measurement of auxiliary (non-Ohmic) heating of an RFP. This heating is consistent with a 1-D classical model that calculates changes in thermal conductivity and Ohmic input power profiles during enhanced confinement (PPCD), and can calculate NBI deposition and classical fast ion diffusion and slowing down. The model is consistent with measured beam heating both during enhanced confinement and after. This is consistent with previous research, which found that fast ions were well-confined on MST and dominated by classical dynamics. Work supported by the USDOE

Jeff Waksman University of Wisconsin-Madison

Date submitted: 13 Jul 2012

Electronic form version 1.4