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**Electron Bernstein Wave Studies in MST**[1] A. SELTZMAN, J. ANDERSON, C. FOREST, P. NONN, J. KAUFFOLD, University of Wisconsin-Madison, S. DIEM, ORNL — The electron Bernstein wave (EBW) has potential to stabilize resistive tearing modes with off-axis current drive for further improvement of RFP confinement. Hardware upgrades to the MST-EBW experiment include a 5.5GHz radar klystron tube capable of 1MW power output driven by a novel resonant switchmode power supply and directed toward the RFP plasma edge through a cylindrical molybdenum wave guide antenna. By utilizing XB conversion, the X-mode evanescently decays in the narrow region between the R and UH layers and couples to the Bernstein mode at the UH layer. The Bernstein wave is strongly damped at the electron cyclotron resonance where it coupled to the electron gyromotion, thereby altering the electron distribution. By external control of magnetic field, either Fisch-Boozer or Ohkawa current drive mechanisms can be activated to drive off axis current in the plasma. Current profile may then be optimized experimentally to reduce particle transport. Initial experiments are presented to verify high power coupling and understand heating via observed x-ray emission and compared to Fokker-Plank modeling.

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Andrew Seltzman
University of Wisconsin-Madison

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