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Electron Bernstein Wave Injection and Heating in MST[1] ANDREW SELTZMAN, JAY ANDERSON, CARY FOREST, University of Wisconsin-Madison — The electron Bernstein wave (EBW) has been suggested as a potential means of further improving RFP confinement with sustained, off-axis current drive to stabilize the resistive tearing modes which govern thermal transport. An S-band EBW heating system was tested on MST resulting in measurement of localized soft-x-ray emission concurrent with rf injection. In order to further investigate coupling, an insertable rf probe was constructed. This allowed measurement of the transverse electric field of the x-mode wave as it crossed the right-hand cutoff layer and showed evanescent decay of the electric field amplitude. This motivated the fabrication of an improved RF probe with a dual axis pair of dipole antennas and pair of loops to measure the electric and magnetic components, respectively, of the injected wave. Upcoming analysis will enable verification of conversion of the injected x-mode wave to the electron Bernstein wave at the upper hybrid resonance layer. Further, the rf probe may measure the parametric decay instability, providing further evidence of coupling to the EBW mode.

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