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Localized SXR Emission During Electron Bernstein Wave Injection in MST[1] JAY ANDERSON, CARY FOREST, ANDREW SELTZMAN, University of Wisconsin-Madison — The electron Bernstein wave has been suggested as a solution to the RFP confinement problem: sustained, off-axis current drive stabilizes the resistive tearing modes which govern thermal transport. A staged experiment to test the feasibility of EBW heating and current drive is underway on MST. Experiments ($\sim 10^5$ W) aimed at a demonstration of EBW heating have produced a localized increase in SXR emission. This measured emission is consistent with modeling in its location, energy spectrum and dependence on radial diffusion within the plasma. Preliminary analysis indicates that the emission is strongest in the region where ray tracing predicts maximum deposition of the injected power. The multi-chord SXR camera used is sensitive to 4-7 keV photons which is consistent with Fokker-Plank modeling of EBW injection. The enhanced SXR emission vanishes quickly when radial diffusion in the plasma is high (as indicated by m=0 magnetic activity); this is also consistent with Fokker-Plank modeling. An increase of boron emission (and presumably boron within the plasma) is also observed during EBW injection. This presents an alternative explanation to the enhanced SXR emission; recent efforts have been made to isolate the two effects.

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