

## **A Spinning Mirror for Fast Angular Scan of EBW Emission**

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Angular scans of electron Bernstein wave (EBW) emission were performed at the Mega Ampere Spherical Tokamak (MAST) by radiometry along a steerable line of sight in a number of reproducible discharges. They led to identification of the conditions for strongest emission and, by reciprocity, for most efficient EBW heating by ordinary-extraordinary-Bernstein (OXB) mode conversion. Measurements confirmed that the conversion efficiency contours are elongated functions of the viewing angles. The contour minor axis is parallel to the magnetic field at the O-mode cutoff layer for a frequency  $f$ . Thus, measurements at various  $f$  offer the potential for inferring the pitch angle profile. For this, and in order to quickly assess the optimum conditions for heating within a single shot, a tilted spinning mirror capable of a full angular scan every 2.5-10 ms was prototyped and installed in front of the MAST radiometer. The materials adopted avoid magnetic braking and other eddy current effects and withstand the high mechanical stresses involved. Vibrations were minimized by a special design and a balancing machine. Preliminary measurements will be presented.