

Abstract Submitted
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Multicolor SXR Tomography on MST M.B. MCGARRY, J.A. GOETZ, D.J. DEN HARTOG, B.E. CHAPMAN, University of Wisconsin-Madison, P. FRANZ, F. BONOMO, L. MARRELLI, Consorzio RFX - Padova, Italy — We present soft-x-ray (SXR) tomographic images of the MST RFP plasma using both the multicolor and two-color configurations during pulsed parallel current drive (PPCD). With the application of PPCD, magnetic flux surfaces are partially restored, and discrete islands can form. The tomographic diagnostic is comprised of four 20-channel cameras at the same toroidal angle but different poloidal angles. The multicolor configuration uses different thickness Be filters on each camera, whereas the two-color configuration uses two pairs of Be filters, measuring four and two distinct energy ranges, respectively. SXR data at these different energies can then be analyzed and compared to magnetic measurements to investigate MHD core dynamics in MST plasmas. We also present the model we use to simulate SXR emissivity images based on user-specified plasma parameters. The model allows localized structures to be introduced, both in the temperature (Te) and density profiles, to simulate the SXR structures that emerge during PPCD. The SXR emissivity model is used to show that Te profiles can be obtained by the standard two-foil technique. We apply this technique to recent data and compare the Te measurement to that of the Thomson scattering diagnostic. Work supported by U.S.D.O.E.

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