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Reconstructions and inferred Te-measurements using a versatile multi-energy SXR pinhole camera at Madison Symmetric Torus (MST) LUIS F. DELGADO-APARICIO, Princeton Plasma Physics Laboratory, PATRICK VANMETER, DANIEL DENHARTOG, University of Wisconsin, Madison, NOVIMIR PABLANT, KEN HILL, BRENTLEY STRATTON, Princeton Plasma Physics Laboratory — A multi-energy soft x-ray (SXR) pinhole camera has been designed, built and deployed for the Madison Symmetric Torus (MST) Reversed Field Pinch (RFP) to aid the study of particle and thermal transport, as well as MHD stability physics. This novel imaging diagnostic technique employs a pixelated x-ray detector in which the lower energy threshold for photon detection can be adjusted independently on each pixel. First estimates of the local electron temperature will be presented based on line-integrated brightness profiles as well as from ratios of the available local emissivities obtained from a 1D Abel-inversion procedure. Analysis is complicated by the presence of bright He- and H-like lines of Aluminum at $\sim$2 keV, but an adequate treatment of the multi-energy data can circumvent these difficulties; the technique was challenged also using strong He- and H-like Ar line-emission at 3-3.5 keV. Data is presented from an improved confinement scenario (PPCD) at MST where T_e can reach up to 2 keV.

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