Abstract Submitted
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Soft X-Ray Diagnostics on the Compact Toroidal Hybrid (CTH) Experiment[1] G. HARTWELL, S. KNOWLTON, J. PETERSON, B.A. STEVENSON, J. HANSON, Physics Department, Auburn University, G. CARSON, Physics Department, University of Southern Mississippi — Soft X-Ray (SXR) systems are used on the CTH experiment for tomographic reconstruction of the emissivity profile and electron temperature measurement. The emissivities from the multi-chord arrays will also be incorporated into reconstruction of the 3-D flux surfaces of the CTH stellarator plasma. SXR tomography is performed with 3 cameras, each consisting of a 20-channel AXUV-20EL photo-diode array filtered with 500nm Al-foil in a poloidal cross-section. The SXR electron temperature diagnostic is a single chord system viewing the plasma simultaneously in 3 energy bands discriminated with filters of different thicknesses. Ratios of the photo-diode signals are used to infer the maximum electron temperature along the chord, subject to issues of impurity lines. Lastly, a vertically-viewing, 20-chord SXR system has been installed and will be used to infer the Shafranov shift of the plasma. A description of the SXR tomography cameras, the tomographic reconstruction technique, and results will be presented.

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