

Abstract Submitted
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Temperature Measurements in Compressed and Uncompressed SPECTOR Plasmas at General Fusion WILLIAM YOUNG, NEIL CARTER, STEPHEN HOWARD, PATRICK CARLE, PETER O'SHEA, General Fusion, GENERAL FUSION TEAM — Accurate temperature measurements are critical to establishing the behavior of General Fusions SPECTOR plasma injector, both before and during compression. As compression tests impose additional constraints on diagnostic access to the plasma, a two-color, filter-based soft x-ray electron temperature diagnostic has been implemented. Ion Doppler spectroscopy measurements also provide impurity ion temperatures on compression tests. The soft x-ray and ion Doppler spectroscopy measurements are being validated against a Thomson scattering system on an uncompressed version of SPECTOR with more diagnostic access. The multipoint Thomson scattering diagnostic also provides up to a six point temperature and density profile, with the density measurements validated against a far infrared interferometer. Temperatures above 300 eV have been demonstrated to be sustained for over 500 microseconds in uncompressed plasmas. Optimization of soft x-ray filters is ongoing, in order to balance blocking of impurity line radiation with signal strength.

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