

Abstract Submitted
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Electron density measurements in STPX plasmas JERRY CLARK, R. WILLIAMS, J.B. TITUS, E.D. MEZONLIN, C. AKPOVO, Florida AM University, E. THOMAS, Auburn University — Diagnostics have been installed to measure the electron density of Spheromak Turbulent Physics Experiment (STPX) plasmas at Florida A. & M. University. An insertable probe, provided by Auburn University, consisting of a combination of a triple-tipped Langmuir probe and a radial array consisting of three ion saturation current / floating potential rings has been installed to measure instantaneous plasma density, temperature and plasma potential. As the ramp-up of the experimental program commences, initial electron density measurements from the triple-probe show that the electron density is on the order of 10^{19} particles/m³. For a passive measurement, a CO₂ interferometer system has been designed and installed for measuring line-averaged densities and to corroborate the Langmuir measurements. We describe the design, calibration, and performance of these diagnostic systems on large volume STPX plasmas.

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