

Abstract Submitted
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New Ion Temperature Measurements using the Compact Neutral Particle Analyzer on SSPX¹ E.D. MEZONLIN, C. RAYNOR, S. ROBERSON, J.A. JOHNSON III, Florida A&M University, Tallahassee, FL, D.N. HILL, B. HOOPER, H.S. MCLEAN, R.D. WOOD, Lawrence Livermore National Laboratory, Livermore, CA, V.I. AFANASYEV, S. KOZOLOVSKY, Ioffe Physico-Technical Institute, St. Petersburg 194021, Russia, SSPX TEAM — We report here first measurements of the charge-exchange losses in SSPX using a newly installed neutral particle analyzer. Simultaneous measurements of the electron temperature (via Thomson scattering) and magnetic field fluctuations are obtained in SSPX discharges with $T_e > 100\text{eV}$. Standard turbulence parameters are derived from the magnetic field measurements. The ion temperatures are measured with $50\mu\text{sec}$ temporal resolution during the plasma pulse, allowing a correlation of these data with the evolution of turbulence in the local magnetic fields. The results are discussed in the context of the relationship between magnetic field fluctuations and high ion temperature spikes in spheromak plasmas and in the context of new approaches to a dynamical theory of turbulent plasmas.

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