

Initial measurements of beam ion profile in NSTX with Solid State Neutral Particle Analyzer Array

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The Solid State Neutral Particle Analyzer (SSNPA) array on the National Spherical Torus Experiment (NSTX) utilizes Si diodes coupled to fast digitizers to measure the energy distribution of charge exchange fast neutral particles (35~100KeV) at four fixed tangency radii (60, 90, 100, and 120cm) to obtain the corresponding beam ion profile. The results have been compared with those on the scanning E//B type Neutral Particle Analyzer (NPA) and good agreement was achieved. The redistribution and loss of beam ions during MHD activity including saw teeth events and IRE's has been observed. Example data from plasma discharges will be presented along with the noise reduction techniques required to operate in the Tokamak environment and post-shot pulse height analysis (PHA) methods.