

Edge transport measurements with the new multi-energy soft-x-ray diagnostic on NSTX. *D.J. Clayton, K. Tritz, D. Stutman, D. Kumar, and M. Finkenthal* The new multi-energy soft-x-ray (ME-SXR) diagnostic is utilized for transport measurements in the NSTX plasma edge. The diagnostic system consists of five 20-channel photodiode arrays, four with different x-ray filters, forming a 4-color radially-resolved x-ray camera with the fifth array acting as a bolometer. The diagnostic has a mid-plane tangential view of the plasma edge from $\rho/a \sim 0.6$ to the SOL, with a spatial resolution of ~ 1 cm. Variable-gain transimpedance amplifiers provide a good signal-to-noise ratio with a time resolution > 10 kHz. The system was successfully commissioned at the end of the 2010 NSTX run campaign and an initial impurity particle transport experiment was performed using neon gas puffs. The impurity transport code STRAHL is now being used to determine the neon diffusive and convective transport coefficients D and v . An initial assessment, using previous estimates of the transport coefficients, shows good agreement between the measured and computed SXR profiles. The capability to discriminate between D and v in this type of experiment will be discussed. For the upcoming NSTX run campaign, additional impurities will be used to study the Z scaling of impurity particle transport in a variety of conditions, including the application of 3D fields.