Abstract Submitted
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Comparison of neutral density profiles measured using D_α and C^{5+} in NSTX-U[1] R.E. BELL, PPPL, F. SCOTTI, LLNL, A. DIALLO, B.P. LEBLANC, M. PODESTA, PPPL, S.A. SABBAGH, Columbia University — Edge neutral density profiles determined from two different measurements are compared on NSTX-U plasmas. Neutral density measurements were not typical on NSTX plasmas. An array of fibers dedicated to the measurement of passive emission of C^{5+}, used to subtract background emission for charge exchange recombination spectroscopy (CHERS), can be used to infer deuterium neutral density near the plasma edge. The line emission from C^{5+} is dominated by charge exchange with neutral deuterium near the plasma edge. An edge neutral density diagnostic consisting of a camera with a D_α filter was installed on NSTX-U. The line-integrated measurements from both diagnostics are inverted to obtain local emissivity profiles. Neutral density is then inferred using atomics rates from ADAS and profile measurements from Thomson scattering and CHERS. Comparing neutral density profiles from the two diagnostic measurements helps determine the utility of using the more routinely available C^{5+} measurements for neutral density profiles. Initial comparisons show good agreement between the two measurements inside the separatrix.

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