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Measurements of impurity line emission in the EUV on NSTX[1]
P. BEIERSDORFER, LLNL, M. BITTER, L. ROQUEMORE, PPPL, J. LEPSON, UC Berkeley — The X-ray and Extreme Ultraviolet Spectrometer (XEUS) has been used to monitor the line emission from various impurity ions on NSTX, in particular the K-shell emission of B, C, N, and O. The wavelength range of the instrument has recently been extended from 65 Å to 135 Å allowing measurements of the K-shell emission of the Lyman lines of hydrogenlike Li ions following lithium deposition on the plasma-facing components as well as of the 2-2 transitions of L-shell Fe ions. The latter transitions are of special interest as diagnostics of stellar coronae and other astrophysical plasmas. Our measurements provide information on impurity behavior in NSTX plasmas under various discharge conditions. Moreover, they calibrate the intensities of astrophysical lines in an intermediate density regime not accessible by other laboratory sources.

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