Abstract Submitted
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Magnetic-Dipole Lines in Highly-Charged Ions of Tungsten[1] J. READER, YU. RALCHENKO, I.N. DRAGANIC, J.D. GILLASPY, J.N. TAN, J.M. POMEROY, NIST, S.M. BREWER, NIST and U. of Maryland — We observed spectra of highly-charged ions of tungsten in the region 10-20 nm with the NIST electron beam ion trap (EBIT). Electron beam energies varied from 4.5 to 7.0 keV. Ionization stages were distinguished by studying intensities of observed lines at the different beam energies. Using an extensive collisional-radiative model, we identifies about 40 new magnetic-dipole (M1) lines, mainly within the ground state configurations $3d^n$ (n=1-9) for charge states W^{47+} to W^{55+}. The results complement our two previous studies of W in this region, carried out at lower and higher beam energies [1,2].The intensities of the M1 lines are highly sensitive to electron densities in various plasmas. We will discuss their application to density diagnostics in hot plasmas such as will be found in the ITER tokamak.

[1] Yu. Ralchenko et al, J. Phys. B: At. Mol. Opt. Phys. **40**, 3861 (2007).
[2] Yu. Ralchenko et al, J. Phys. B: At. Mol. Opt. Phys. **41**, 021003 (2008).

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