

Inner-shell ionization in Maxwellian x-ray spectra of Ne-like W

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Unlike low- and mid-Z ions, the most abundant highly-charged high-Z ions are known to be produced at electron temperatures on the order or even higher than their ionization energies (see, e.g., [1]). Therefore the Maxwellian plasmas of modern and future magnetic fusion devices are expected to contain a large fraction of hot electrons that should inevitably affect population kinetics and, in particular, the ensuing x-ray spectra. Such spectra will be an important diagnostic tool for tokamak and stellarator plasmas of the nearest future [2]. We will discuss this effect for the x-ray radiation of Ne-like W which is expected to be the most abundant ion in the ~20-keV core plasma of the ITER tokamak.

[1] Yu. Ralchenko et al, AIP Conf. Proc. **1161**, 242–250 (2009); DOI:10.1063/1.3241195

[2] P. Beiersdorfer et al, J. Phys. B **43**, 144008 (2010); DOI:10.1088/0953-4075/43/14/144008