

FUNDAMENTAL ATOMIC DATA FOR FUSION, LITHOGRAPHY AND OTHER APPLICATIONS

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The behavior of the highly-charged ion (HCI) in heavy ion element plasmas is currently of major interest and has been motivated by their application in a number of high profile areas of science and technology, such as W-inclusion as plasma-facing components (PFCs) in magnetic confinement fusion, Gd/Tb based plasmas as source for EUV lithography as well as laboratory plasma light sources. Considerable effort has been made to obtain reliable atomic data, including emission lines and various rate coefficients, to enable identification of reference lines for plasma diagnostics, to reliably estimate concentration, ionization balance and cooling rates.

We carried out a detailed calculation on dielectronic recombination rate coefficients of Ne-, Rh-, Pd- and Ag-like W [1,2]. We studied the UTA emission from a number of high-Z spectra of laser produced plasmas in EUV region [3]. In this report, we will present an overview of our recent progress in plasma spectra and atomic data calculation.

References

[1] B. Li, G. O'Sullivan, W. -B. Fu and C. -Z. Dong, *Phys. Rev. A* **85** 012712 (2012).

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