PHOTOIONIZATION OF HIGHLY CHARGED ARGON IONS AND THEIR DIAGNOSTIC LINES

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Lines of highly charged He-like and Li-like ions in the ultraviolet and X-ray regions provide useful diagnostics for the physical and chemical conditions of the astrophysical as well as fusion plasmas. For example, Ar XVII lines in a Syfert galaxy have been measured by the X-ray space observatory Chandra. Results on photoionization of Ar XVI and Ar XVII obtained from relativistic Breit-Pauli R-matrix method and close-coupling approximation will be presented. Important features for level-specific photoionization for the diagnostic w, x, y, z lines of He-like Ar XVII in the ultraviolet region will be illustrated. Although monotonous decay dominates the low energy photoionization for these ions, strong resonances appear in the high energy region indicating higher recombination, inverse process of photoionization, at high temperature. The spectra of the well known 22 diagnostics dielectronic satellite lines of Li-like Ar XVI will be shown produced from the the KLL resonances in photoionization.
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