Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

Photoionization and Electron-Ion Recombination of Ar XVI and Ar XVII[1] SULTANA NAHAR[2], Ohio State U — Results on photoionization and electron-ion recombination of Ar XVII and Ar XVII obtained from unified method will be reported. The method, based on relativistic Breit-Pauli R-matrix method and close-coupling approximation, (i) subsumes both the radiative and dielectronic recombination and (ii) provides self-consistent sets of photoionization and recombination cross sections, σ_{PI} and σ_{RC}. Important features for level-specific σ_{PI} and recombination rate coefficients (α_R), such as for diagnostic w, x, y, z X-ray lines of Ar XVII in the ultraviolet region of astrophysical spectra will be illustrated. Monochromatic decay dominates the low energy photoionization and low temperature recombination rates. However, high energy resonances in σ_{PI} introduce a DR bump at high temperature recombination. While the 1s-2p core excitations enhance the background of $\sigma_{PI}(nSLJ)$ at n=2 thresholds. the resonances become much weaker beyond them. The extensive sets of results correspond to fine structure levels with $n \leq 10$ and $0 \leq l \leq 9$. They include 98 levels of Ar XVI of total angular momenta $1/2 \leq J \leq 17/2$ and 191 levels of Ar XVII of $0 \leq J \leq 9$. The present $\alpha_R(T)$ with temperature show good agreement with ava

[1]Partial support: NSF, DOE
[2]Presentation in PDF

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Date submitted: 27 Jan 2012 Electronic form version 1.4