

Abstract Submitted
for the DAMOP18 Meeting of
The American Physical Society

Photoionization Of Ne III For Astrophysical Applications¹ SULTANA NAHAR², Ohio State Univ - Columbus — Photoionization is one process that introduces lines for neon ions seen in astrophysical plasmas such as of quasars, planetary nebulae, supernova remnants. The present study on photoionization of Ne III, $\text{Ne III} + h\nu \rightarrow e + \text{Ne IV}$, reports features and characteristics in cross sections (σ) obtained from the relativistic Breit-Pauli R-Matrix method using a close coupling wavefunction expansion of 58 levels of the residual ion Ne IV of configurations $2s^22p^3$, $2s2p^4$, $2p^5$, $2s^22p^23s$, $2s^22p^23p$, $2s^22p^23d$, $2s2p^33s$. Along with narrow Rydberg resonances, wide Seaton resonances due to photoexcitation-of-core (PEC) are noted in σ . Although relatively a low Z ion, it shows distinct relativic effects in the low energy region near the ionization threshold by producing resonances through couplings of fine structure channels. Such resonances, not allowed in LS coupling, can explain the the observed features in the measured σ carried out at the sophisticated facility of Advanced Light Source in Berkeley. These features will be demonstrated at the presentation.

¹NSF, DOE, OSC

²My email should be changed from nahar@astronomy.ohio-state.edu to nahar.1@osu.edu

Sultana Nahar
Ohio State Univ - Columbus

Date submitted: 06 Feb 2018

Electronic form version 1.4