Abstract Submitted
for the DAMOP18 Meeting of
The American Physical Society

Improved Collision Strength and Line Emissivity Ratios of Astrophysical Importance for Cl III[1] RAHLA NAGHMA, SULTANA NAHAR, ANIL PRADHAN, Ohio State Univ - Columbus — The relativistic Breit-Pauli-R-Matrix method has been used to carry out computation for the electron impact excitation collision strengths for all the fine structure transitions within the $^4S^o$, $^2D^o$ and $^2P^o$ levels in the $3s^2 3p^3$ ground configuration of astrophysically important phosphorous-like ion Cl III. The effective collision strengths, obtained by averaging the electron impact excitation collision strengths over a Maxwellian distribution of electron velocities are presented over a wide temperature domain of astrophysical interest (Te=10^3 to 10^6 K) for all the 10 transitions. We aim to develop an atomic model for forbidden optical and near-IR transitions among low-lying levels of the ground configuration, as well as UV lines among dipole transitions between the ground and excited configurations. Density and temperature dependent line emissivity ratios for various lines, including several observed lines, are computed and are compared with existing values. We find higher values than those available. Results will be presented and explanations for the difference will be discussed.

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Date submitted: 25 Jan 2018 Electronic form version 1.4