

THE ELECTRON EXCITATION RATE FOR THE GREEN CORONAL LINE AT 5303 Å

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The collision strengths for transitions between levels of FeXIV have been calculated using the close coupling and the Coulomb-Born I methods. It is shown that the Coulomb-Born I approximation gives reliable results for highly ionized ions.

The electron excitation rate coefficient for the transition ${}^2P_{1/2}^0 - {}^2P_{3/2}^0$ in the $3s^2 3p$ configuration, giving rise to the green coronal line, has been investigated in detail. The quantum defect method, which takes into account the excitation via autoionization levels of FeXIII, has been used. This process greatly increases the excitation rate for low energies of the incident electron.

The statistical equilibrium populations of the FeXIV levels have been calculated under coronal conditions, and the effective excitation rate coefficient for the green coronal line is given for a wide range of temperatures and densities.