

Abstract Submitted
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Electron Impact Excitation Cross Sections for N-like ions¹

SWARAJ TAYAL — The improved atomic calculations for electron impact excitation cross sections of nitrogen like Mg VI and Si VIII ions have been performed using the B-spline Breit-Pauli R-matrix method. The flexible non-orthogonal sets of spectroscopic and correlation radial functions are employed for an accurate representation of the target states and scattering functions. The close-coupling expansion includes 76 bound levels of Mg VI and Si VIII ions covering all possible terms of the ground $2s^22p^3$ and excited $2s2p^4$, $2p^5$, $2s^22p^23s$, $2s^22p^23p$, and $2s^22p^23d$ configurations. The calculated excitation energies of the target levels are in excellent agreement with experiment and represent a significant improvement over the previous calculations. The present results of cross sections are compared with a variety of other close-coupling calculations. The oscillator strengths and transition probabilities for several transitions are noted to be in good agreement with other theories and available experimental data. The present cross sections are in good agreement with other theories and experiment for many transitions, but some differences in magnitude and shape for some other transitions are also noted.

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