

Abstract for ICAMDATA05, Meudon, France
October 15–19, 2006

**Multi-Configuration Distorted-Wave Approximation in Electron-Impact Ionization
of Ar⁶⁺**

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Domain : Low Energy Electron Atom Interactions

A quasi-relativistic distorted-wave approximation is developed to investigate the direct electron-impact ionization processes, in which the configuration interactions are considered in the initial and final states of target. As an example, the direct detailed-level electron-impact ionization cross sections for the ground and low excited states of Ar⁶⁺(3s², 3p², 3s3d) are calculated in the energy range from 1.02 to 15Ith (Ith the ionization threshold). Comparison with the available data demonstrates that our results are reasonable. The effects of configuration interactions are discussed, and the validity of transformation principles by statistical weights between configuration-averaged and detailed-level electron-impact ionization cross sections is analysed.