# Electron-impact ionization cross sections and rates for Si IV-VIII

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We investigate the ionization of silicon ions Si IV-Si VIII by electron impacts in hot plasmas. Our calculations of the cross sections and rates rely on the Coulomb-Born-Exchange, Binary-Encounter-Dipole and Distorted-Wave methods implemented in the Flexible Atomic Code (FAC) [1]. Our results are compared with measurements [2, 3] and other calculations [4]. We use a semi-empirical formula for the cross section, which involves a small set of adjustable parameters [5]. The rate coefficient is then expressed in terms of these parameters and is represented in a large temperature interval, up to $10^8$ K. As expected, the agreement with measurements improves for increasing ion charges, confirming the applicability of our approach to hot plasma studies involved in inertial confinement fusion, and its reliability. The configuration interaction is taken into account and is shown to affect the cross section at low energy, in particular for $Si^{3+}$.

## References

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