

Abstract Submitted
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Perturbative, R-matrix, and MCHF treatments for near-threshold dielectronic recombination of Si-like ions JAGJIT KAUR, THOMAS GORCZYCA, Western Michigan University, NIGEL BADNELL, University of Strathclyde — We present results from a variety of dielectronic recombination (DR) calculations for Si-like ions. A perturbative, multi-configurational Breit-Pauli method is used to calculate DR rate coefficients for the entire Si-like isoelectronic sequence. In addition, we have performed R-matrix and multi-configuration Hartree-Fock (MCHF) calculations to investigate the low-lying resonances that dominate the low-energy, near-threshold region in S^{2+} . This work is motivated by the astrophysical importance of DR of Si-like S^{2+} in determining the sulfur ionization balance in the Orion nebula, a photoionized plasma corresponding to low-energy electrons. The computed DR rate coefficients comprise part of the assembly of the DR data base required in the modeling of dynamic finite density plasmas.

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