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Dielectronic Recombination of Al-Like Ions SHAHIN ABDEL-NABY, DRAGAN NIKOLIC, THOMAS W. GORCZYCA, Department of Physics, Western Michigan University, Kalamazoo, MI 49008-5252, NIGEL R. BADNELL, Department of Physics, University of Strathclyde, Glasgow, G4 ONG, UK, DANIEL W. SAVIN, Columbia Astrophysics Laboratory, Columbia University, New York, NY 10027 — Accurate dielectronic recombination (DR) data are important for cosmic and laboratory plasma modeling. Over the past few years, our group has computed reliable DR data for all isoelectronic sequences up through Mg-like ions. Recently, we have focused our work on the complex third-row M-shell isoelectronic sequences, especially Al-like. Previous calculations for the DR rate coefficient for S^{3+} were performed only within a non-relativistic LS-coupling approximation. Fe^{13+} DR calculations, including semi-relativistic effects, have been completed and tested against the Heidelberg heavy-ion Test Storage Ring facility measurements. Here we present semi-relativistic DR rate coefficient calculations for a wide range of Al-like ions using AUTOSTRUCTURE, a level-resolved distorted-wave program package. The important effect of fine structure splitting in the Al-like ground state will be discussed. Finally, our results are fitted into a simple formula for use by astrophysical plasma modelers.
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