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M-Shell Dielectronic Recombination for the Al-Like Isoelectronic Sequence[1] SH. A. ABDEL-NABY, T.W. GORCZYCA, Department of Physics, Western Michigan University, Kalamazoo, MI 49008-5252, USA, N.R. BADNELL, Department of Physics, University of Strathclyde, Glasgow, G4 0NG, UK — Dielectronic recombination (DR) is the dominant electron-ion recombination process for most ions in both photoionized and collisionally-ionized plasmas and plays a central role in determining the charge state balance and spectra of these plasmas. Accurate DR rate coefficients are thus essential for modeling astrophysical plasmas. We have carried out extensive DR calculations for the Al-like isoelectronic sequence using a state-of-the-art multi-configuration Breit-Pauli (MCBP) approach. We present total rate coefficients for both DR and radiative recombination (RR) for Al-like iron peak ions (V^{10+}- Ni^{15+}) along with Cu^{16+} and Zn^{17+} spanning a temperature range of $z^2(10-10^7)$K, where z is the initial ion charge. The Fe^{13+} results are benchmarked to the experimental measurements from the Heidelberg Test Storage Ring. Both LS and intermediate coupling (IC) schemes are considered. We also present DR + RR fitting coefficients for both ground and meta-stable levels of all ions.

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