

Abstract Submitted
for the DAMOP06 Meeting of
The American Physical Society

Dielectronic Recombination of Mg^{2+} : Importance of Relaxation and Term-Dependence¹ J. FU, D. NIKOLIC, T.W. GORCZYCA, Western Michigan University, D.W. SAVIN, Columbia Astrophysics Laboratory, N.R. BADNELL, University of Strathclyde, UK — Discrepancies between two recent theoretical results [1,2] for the dielectronic recombination (DR) of low-charged Ne-like ions have been found and are attributed to orbital relaxation and term-dependence. For Ne-like Mg^{2+} , these effects cause differences in the maximum DR rate coefficients by more than 50% between similar calculations employing orbitals determined from different optimization procedures. We resolve this discrepancy by utilizing a separate basis of non-orthogonal orbitals for the $2s^22p^6$ ground and $2l \rightarrow 3l'$ excited states, and present new, more accurate DR rate coefficients for low-charged Ne-like ions.

[1] O. Zatsarinny, et al., A&A **426**, 699 (2004).

[2] M. F. Gu, ApJ **590**, 1131 (2003).

¹Work supported in part by NASA APRA and SHP SR&T programs.

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Date submitted: 24 Feb 2006

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