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**Signature of Quantum Interference in Photorecombination of Ar-Like Ions**[1] D. NIKOLIĆ, T.W. GORCZYCA, Western Michigan University, D.W. SAVIN, Columbia Astrophysics Laboratory, N.R. BADNELL, University of Strathclyde — We analyze both experimental (Schippers *et al.*, J. Phys. B **31**, 4873 (1998); Phys. Rev. A **65**, 042723 (2002)) and calculated total cross sections for dielectronic recombination (DR) of Ar-like $Sc^{3+}$ and $Ti^{4+}$ ions in the vicinity of the $3p^5 3d^2$ and $3p^5 3d4s$ doubly-excited, highly-correlated resonances. Our R-matrix approach provides a unified quantum-mechanical description of the electron-ion photorecombination (PR) process, treating radiative recombination and DR as coherently interfering pathways for the rare asymmetric profiles of the strong $3p^5 3d^2\ ^2F_{7/2,5/2}$ near-threshold resonances. In order to treat the PR completely and more practically, all additional (Lorentzian) resonance contributions for the rest of the Rydberg series are calculated within an independent-processes, isolated-resonance, distorted-wave approximation using the atomic structure and collision code AUTOSTRUCTURE.

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