Single Photon Double Ionization of Atomic Oxygen[1] MADHUSHANI WICKRAMARATHNA, THOMAS GORCZYCA, Western Michigan University, CONNOR BALLANCE, Queen's University Belfast, WAYNE STOLTE, National Security Technologies, SSRL, and ALS — Single photon double ionization cross sections are calculated using an R-matrix with pseudostates (RMPS) method (P. G. Burke, R-matrix Theory of Atomic Collisions, Springer 2011) which was recently applied by Gorczyca et al. (JPB, 46, 195201, 2013) for the double photoionization of helium. With the convergence of these theoretical calculations for the simple case of helium, we extend this methodology to consider the more complex case of oxygen double photoionization. We compare our calculated results with recent measurements at the Advanced Light Source, as well as earlier experimental measurements (Angel and Sampson, PRA, 38, 5578, 1988). Our RMPS results agree well, qualitatively, with the experimental measurements, but there exist outstanding discrepancies to be addressed.

Madhushani Wickramarathna
Western Michigan University

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