

Abstract Submitted
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Photoionization Angular Distributions for the Hydrogen Molecular Ion.¹ OLA AL-HAGAN, J.L. PEACHER, D.H. MADISON, University of Missouri-Rolla — Walter and Briggs [*J. Phys. B: At. Mol. Opt. Phys.* **32**, 2487 (1999)] used a perturbation method to calculate the single photoionization of the molecular hydrogen ion. They used an ansatz “2C” wave function and they presented results for the angular distribution of the photoionized electron. More recently Rescigno et al. [*Phys. Rev. A* **72**, 052709 (2005)] have carried out a non-perturbative calculation for the same process. They used a numerical grid-based method combined with exterior complex scaling. Their results show that the photoelectron distribution follows the direction of photon polarization, while the simpler perturbative “2C” model of Walter and Briggs predicts alignment along the molecular axis. We will present our perturbative results for this process in order to determine the source of the difference between the angular distributions obtained by the other two calculations.

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Don Madison
University of Missouri-Rolla

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