

Abstract Submitted
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Positron scattering off the H_2^+ and H_2 molecules using the convergent close-coupling method¹ MARK ZAMMIT, JEREMY SAVAGE, DMITRY FURSA, IGOR BRAY, Curtin University — We have extended a single center formulation of the convergent close-coupling (CCC) method for modeling positron-atom collisions [1] to positron scattering from diatomic molecules. CCC calculations have been applied to positron scattering off the H_2^+ and H_2 molecules. A single center approach to the calculation of molecular structure was utilised by diagonalizing the target Hamiltonian in a large Sturmian (Laguerre) basis. Such expansions allow us to model positronium formation channels indirectly. A fixed nuclei formulation was used to obtain electronic excitation and total cross sections, which are compared with available experimental and theoretical data. In the near future we will generalize this work to electron and photon scattering off molecules.

[1] D. V. Fursa and I. Bray, New J. Phys., 14 (2012) 035002.

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