

## Low-energy s-wave and p-wave positronium-hydrogen collisions<sup>1</sup>

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Recent experimental work at University College London of positronium scattering has led to renewed interest in models of positronium-atom collisions [1]. In this work, we investigate positronium-hydrogen scattering, a fundamental four-body Coulomb process. We have computed the s-wave and p-wave phase shifts for low energies by employing the Kohn variational method and a number of variants on the method. Two low-lying resonances for the s-wave and one resonance for the p-wave below the Ps(n=2) threshold have been investigated. We also present a detailed effective range theory analysis using expansions that explicitly include the van der Waals interaction and compare to previous work using only short-range terms.

1. S. J. Brawley, S. Armitage, J. Beale, D. E. Leslie, A. I. Williams, and G. Laricchia *Science* **330**, 789 (2010).

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