

Low-energy S-wave Positronium-Hydrogen collisions D. Woods, S. J. Ward and P. Van Reeth

In response to proposed measurement discussed by St. Olaf's positron group of low-energy positronium-alkali atom scattering [1], we begun a theoretical investigation of Ps scattering from simple atoms. Recently, we computed singlet and triplet S-wave phase shifts for low-energy elastic Ps-H scattering process. This process is of interest since it is a fundamental four-body Coulomb process. We employed the Kohn variational method and a number of variants on the method, namely, the inverse Kohn, generalized Kohn, and the complex Kohn for the S-matrix and T-matrix. We compare our results to the earlier Kohn and inverse Kohn calculations [2,3]. S.J.W. acknowledges support from NSF under grant no. PHYS-968638

[1.] Jason Engbrecht, *Private Communication*.

[2.] P. Van Reeth and J. W. Humberston, *J. Phys. B* **36**, 1923 (2003).

[3.] P. Van Reeth and J. W. Humberston, *Nucl. Instrum. Methods Phys. Res. A* **221**, 140 (2004).