

Abstract Submitted
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Hybrid theory of positron-hydrogen scattering and positronium formation ANAND BHATIA, NASA/Goddard Space Flight Center — A variational wave function incorporating short range correlations via Hylleraas type functions plus long-range polarization terms of the polarized orbital type but with smooth cut-off function has been used to calculate S-wave phase shifts for positron scattering from hydrogen. This approach gives the direct r^{-4} potential and a non-local optical potential which is negative definite. The resulting phase shifts have rigorous lower bounds and the convergence is much faster than those obtained without the modification of the target function. The continuum functions obtained have been used to calculate positronium formation.

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