Near Threshold Positron Impact Ionization of Hydrogen KRISTA
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Holy Cross, J.H. MACEK, University of Tennessee — The hyperspherical hidden
crossing method is used to calculate the ionization cross section for e^+-H near thresh-
old. The Wannier ridge for positron impact ionization corresponds to a co-linear
arrangement with the electron between the positron and proton and $r_-/r_+ = .4643$.
The adiabatic Hamiltonian for total angular momentum zero is expanded about the
saddle point and the analytic adiabatic energies are used to obtain the threshold
law for breakup: $\sigma(E) \propto E^{2.64}\exp[-0.49\sqrt{E}]$. Our results are consistent with the
previous values of the Wannier exponent[1] and the second order correction terms to
the threshold law[2,3]. Using our numerical results for the transition probability in
the interaction region, we calculated the absolute $S-$wave ionization cross section.
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