Near-Threshold S-wave Positron-Hydrogen Ionization KRISTA
JANSEN, S.J. WARD, University of North Texas, J. SHERTZER, College of the
Holy Cross, J.H. MACEK, University of Tennessee — We have used the hyperspher-
ical hidden crossing method to compute the S-wave positron-hydrogen ionization
cross section near threshold. For total angular momentum zero, we expanded the
adiabatic Hamiltonian about the saddle point associated with the Wannier ridge.
Our results are consistent with previous values of the Wannier exponent [1] and
second order correction terms to the threshold law [2,3]. By calculating the tran-
sition probability within the reaction zone we were able to determine the absolute
S- wave positron-hydrogen ionization cross section near threshold. S.J. W. and
J.S. acknowledge support from NSF, under a collaborative grant (PHYS- 0440714,
PHYS-0440565). [1] H. Klar, J. Phys. B 14, 4165 (1981). [2] W. Ihra, J. H. Macek,
F. Mota-Furado and P.F. O'Mahony, Phys. Rev. Lett. 78, 4027 (1997). [3] James
Sternberg, S. J.Ward, J. H. Macek and J. Shertzer, Bull. Am. Phys. Soc. 49, 52
(2004).

Krista Jansen
University of North Texas