Resonances with unnatural parities in the positron-hydrogen system[1] ZONG-CHAO YAN, University of New Brunswick, YEW KAM HO, Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan, ROC — There has been continuous interest in calculations of resonances in positron-hydrogen scattering [1]. Here we present a calculation of resonances with unnatural parities in the positron-hydrogen system. While such resonances can not be accessed by positron collisions with the ground state hydrogen atom, they can be reached by positron scattering with the excited hydrogen atoms. The method of complex-coordinate rotation [2] is used in our work. Elaborate and extensive Hylleraas bases [3] are used to take into account of the correlation effects. Energies and widths for the P^e, D^o, F^e, G^o, H^e, and I^o resonance states below various excited positronium and hydrogen thresholds have been calculated. Results will be presented at the meeting.

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[3] Z.-C. Yan and G. W. F. Drake, Chem. Phys. Lett. **259**, 96 (1996).

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