Abstract Submitted
for the DAMOP05 Meeting of
The American Physical Society

High-lying resonances in positron scattering by the helium ion below the Ps(n=3) threshold[1] Z.-C. YAN, University of New Brunswick, Canada, Y.K. HO, Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan, ROC — Ever since Bhatia and Drachman [1] reported two S-wave resonances in positron scattering by a helium ion, there has been considerable interest in and sometimes controversial on the investigation of the resonances in such a system [2]. In the present work, we apply the method of complex-coordinate rotation to investigate resonances in positron scattering by helium ions. Highly correlated Hylleraas functions are used to calculate resonances for high-angular-momentum states up to $L = 9$. We will report the results for high-lying resonances below Ps(n=3) threshold. A comparison will be made with the available results in the literature.

[1] A. K. Bhatia and R. J. Drachman, Phys. Rev. A **42**, 5117 (1990)
[2] Y. K. Ho, Phys. Rev. A **53**, 3165 (1996); A. Igarashi and I. Shimamura, Phys. Rev. A **56**, 4733 (1997); Y. K. Ho and Z.-C. Yan, Phys. Rev. A **66**, 062705 (2002); A. Igarashi and I. Shimamura, Phys. Rev. A **70**, 012706 (2004); N. Yamanaka, et al. Phys. Rev. A **70**, 062701 (2004)

[1]Research supported by NSC and NSERC

Z.-C. Yan
University of New Brunswick

Date submitted: 26 Jan 2005 Electronic form version 1.4