An investigation of resonances in e^+-H scattering embedded in Debye plasmas[1] YE NING, Z.-C. YAN, University of New Brunswick, Y.K. HO, Institute of Atomic and Molecular Sciences — We have carried out calculations for S-wave and P-wave resonances in e^+-H scattering in weakly coupled Debye plasmas in which the interacting potential between two charge particles is represented by a screened Coulomb potential. We have employed the complex-scaling method [1] with Hylleraas-type wave functions to take into account of the correlation effects. In the complex-scaling treatment of the screened Coulomb potential, we first performed a Taylor series expansion for the exponential function that contains the "r_{ij}" factor into a polynomial with various powers $(r_{ij})^n$. Then complex transformation with $r_{ij} \rightarrow r_{ij}\ exp(i\theta)$ for such a series was subsequently carried out, and resonance complex eigenvalues were deduced from their stabilization with respect to the changes of rotational angles θ, and with respect to the changes of some parameters in the wave functions (see [2] for more details). For S-wave resonances, reasonably good agreement has been found with earlier calculations using different methods [3, 4]. Some new results for the P-wave resonances will be presented at the meeting.

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[2] L.-G. Jiao and Y. K. Ho, *Phys. Plasmas* **20**, 083303 (2013);
[3] S. Kar and Y. K. Ho, *J. Phys. B* **38**, 3299 (2005);
[4] S. Chakraborty and Y. K. Ho, *Phys. Rev. A* **77**, 014502 (2008).

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