

Abstract Submitted
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Spectral Analysis of Hydrogenic Ions Embedded in Strongly Coupled Plasmas¹ YEW KAM HO, H.F. LAI, Y.C. LIN, Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan, ROC — In the present work, we report theoretical calculations for spectral properties of hydrogenic ions He^+ , Li^{2+} , Be^{3+} , B^{4+} , and C^{5+} embedded in strongly coupled plasmas. The hydrogenic $1s$, $2p$, and $3p$ states have been investigated using the ion-sphere (IS) model [1]. The spectral properties including the ground state energy, the excitation energy, and the oscillator strength for the $1s - 2p$ and $1s - 3p$ transitions are calculated using B-spline basis. Results have been obtained as functions of the ion-sphere radius R in the IS model. Our calculated values can be used to deduce the temperature and the electronic charge density for strongly coupled plasmas. A comparison with an earlier calculation [2] will be presented at the meeting.

[1] S. Ichimaru, *Rev. Mod. Phys.* **54**, 1017 (1982).

[2] A. N. Sil, B. Saha, and P. K. Mukherjee, *Inter. J. of Quantum Chem.* **104**, 903 (2005)

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