Interference in Photo-detachment of tri-atomic negative ion near a hard reflecting surface

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Abstract

The phenomena in which an extra electron is removed from a negative ion is called photo-detachment. Photo-detachment is important phenomena, used to find the structure of anions, particulary to find the electron affinities. In this paper, we present theoretically the induced efffects in the photo-detached of tri-atomic anion H3 near hard reflecting wall or surface. For the photo-detachment process, a Z-polarized coherent source of radiations (laser) is used to kick electrons from H3 like anion in the domain of a hard reflecting surface. Imaging method is adopted to derive the generalized detached electron wave, differential cross-section and the total cross-section Analytically. Numerical solutions (simulations) for total electron flux and the total cross-section is also presented. In the electron flux, shows visible oscillation and hence the induced effect of surface in the interference. It is depicted that the reflecting hard wall strongly affects the flux and total photo-detachment cross-section

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