

Abstract Submitted
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Photoionization of Xe⁺ ion confined in C₆₀ fullerene¹ ZHIFAN CHEN, ALFRED Z. MSEZANE, Clark Atlanta University — Photoionization cross section for the Xe⁺@C₆₀ endohedral fullerene has been studied using our open-shell random phase approximation with exchange method and a C₆₀ model potential. The C₆₀ fullerene was described by an attractive short range spherical well with potential V(r), given by V(r) = - V₀ for r_i < r < r₀, otherwise V(r) = 0, V₀ = 0.3028 a.u. The wave functions of the Xe⁺ confined inside the C₆₀ have been evaluated by solving the Schrödinger equation with both regular and irregular solutions and the continuous boundary conditions of the wave functions and their logarithmic derivatives at r_i and r₀. Our calculation included all the intershell coupling among the 4d-εf, 5s-εp, and 5p-εs, εd transitions. The RPAE equation was solved to obtain the partial cross sections with a total of 12 ²D states, 9 ²P states and 6 ²S states. The photoionization of Xe⁺@C₆₀ shows stronger correlated confinement resonances.

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