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Time-dependent close-coupling calculations of the double photoionization of He@C_{60}[1] JOHN LUDLOW, TECK-GHEE LEE, M.S. PINDZOLA, Auburn University — The double photoionization of a helium atom enclosed in a C_{60} molecule, He@C_{60}, has been investigated using the time-dependent close-coupling method [1], with the C_{60} molecule represented by a spherical shell potential and the helium atom treated non-perturbatively. Comparisons are made with the double photoionization of a bare helium atom. The ratio of the total double photoionization cross section of He@C_{60} to that of a bare helium atom is found to exhibit oscillations [2] due to the interference between three photoelectron waves: the photoelectron wave emerging directly from the ionized 1s subshell and the photoelectron waves reflected from the inner and outer boundaries of the C_{60} shell. Single energy differential cross sections and triple differential cross sections are calculated. The investigation is extended to examine the double photoionization of a Helium atom enclosed in a positively or negatively charged C_{60} molecule.

[1] M. S. Pindzola *et al.*, J. Phys. B **40**, R39 (2007).
[2] M. Ya. Amusia, E. Z. Liverts and V. B. Mandelzweig, Phys. Rev. A **74**, 042712 (2006).

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John Ludlow
Auburn University

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