

Abstract Submitted
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Xe@C₆₀: A “melting pot” of multiple photo-effects¹ HIMADRI CHAKRABORTY, Northwest Missouri State, Maryville, MO 64468, MOHAMED MADJET, THOMAS RENGER, Free University, D-14195 Berlin, Germany, JAN-MICHAEL ROST, MPIPKS, D-01187 Dresden, Germany, STEVE MANSON, Georgia State, Atlanta, GA 30303 — Considering a Xe atom endohedrally confined in C₆₀, we calculate the photoionization cross section of all the subshells of the compound. Calculations are performed by a time-dependent density functional method that includes important correlations [1]. Multiple effects characteristic to the endohedral photo response are found to coexist in the spectrum. The low energy cross section of Xe 5p is found to draw substantial oscillator strength from the plasmon active C₆₀ channels. But the high energy 5p cross section exhibits simple confinement oscillations as in the Xe innershell cross sections. Xe 5s and C₆₀ 2s hybridize to yield two novel states of mixed atom-fullerene character whose cross sections show very rich structures. Over the Xe 4d giant resonance region the 4d channel dominates and transfers its own oscillations to other weaker atomic channels. Finally, the cross sections of the intermediate angular momentum C₆₀ states greatly modify from the interplay of the central Coulomb and the centrifugal barrier potentials. [1] Madjet et al., J. Phys. B **41**, 105101 (2008).

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