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Strong-field above-threshold ionization in laser-irradiated C$_{60}$: The signatures of orbital symmetry and intramolecular interference
VLADIMIR USACHENKO, Institute of Applied Physics, National University of Uzbekistan, Tashkent, 100174, Uzbekistan, VYACHESLAV KIM, Institute of Ion-Plasma and Laser Technologies, Tashkent 700125, Uzbekistan, PAVEL PYAK, Physics Department, National University of Uzbekistan, Tashkent, 100174, Uzbekistan — We report about the results of our theoretical study of strong-field (multiphoton) above-threshold ionization (ATI) in laser-irradiated carbon fullerene molecule C$_{60}$ under condition of relevant experiment [1]. The problem is addressed within the velocity-gauge (VG) formulation of molecular strong-field approximation (SFA) [2] essentially exploiting the density-functional-theory (DFT) method for numerical composition of initial (laser-free) molecular state using the routines of GAUSSIAN-03 code [3]. The results of our present VG-SFA calculation for C$_{60}$ photoelectron energy spectra (PES) demonstrate two distinct (well-separated) and pronounced local interference minima - in the low-energy and the high-energy domains of produced PES - both arising due to destructive intramolecular (multislit) quantum interference of strong-field ionization corresponding to photoelectron emission from multiple separate atomic centers.