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Photo-Fragmentation of Lithium Atoms in FEL Radiation Fields

MATTHEW FOSTER, J. COLGAN, Los Alamos National Laboratory, Theoretical Division, M.S. PINDZOLA, Auburn University, ALEXANDER DORN, Max-Planck-Institut für Kernphysik — Multi-electron ejection from lithium induced by absorption of a single photon is a fundamental few-body reaction that tests the correlated interaction dynamics between atomic constituents. Experiments have been proposed using intense FEL radiation at FLASH in combination with reaction microscopes to measure four-body dynamics. These proposed experiments will first measure the double ionization dynamics from both the even parity Li ground state and the laser excited odd parity Li($2p\ ^2P^o$) state. We will present theoretical calculations using the time-dependent close-coupling method (TDCC) to assist in the experimental search for interesting correlation effects for both double and triple ionization of lithium.

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