

Abstract Submitted
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STIRAP with XFEL pulses¹ ANTONIO PICON, STEPHEN SOUTHWORTH, Argonne National Laboratory — The development of the laser in the optical-IR regime stimulated completely new schemes for controlling quantum systems by resorting to the coherence of the light-matter interaction. Along this line, it is interesting to explore these schemes or new ones in the x-ray regime, especially with the advent of x-ray free-electron lasers (XFELs) which deliver spatio-temporal coherent pulses in the femtosecond timescale. The new factor in the x-ray regime with respect to the optical regime is the unavoidable creation and ultrafast decay of core-excited states driven by strong electron correlations that one needs to consider. Hence, X-Ray Quantum Optics opens an interesting field in order to explore strongly correlated systems driven by x-ray pulses, and definitely it will play a crucial role in the development of characterization methods for x-ray pulses at XFELs. Here, we propose a theoretical scheme for STIRAP (Stimulated Raman Adiabatic Passage) in Ne gas for the soft x-ray regime. Experimental feasibility will be discussed.

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