

Abstract Submitted
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Excitation of atomic and nuclear coherence by strong optical fields YURI ROSTOVTSEV, University of North Texas, TREENA CHATTERJEE, TAMS, University of North Texas — Recent progress in ultrashort, e.g. attosecond, laser technology allows to obtain ultra-strong fields which can be of the same order of magnitude as the electric field created by an atomic nucleus. Interaction of such strong and broadband field with atomic systems even under the action of a far-off resonance strong pulse of laser radiation should be revisited. As we have shown, such pulses can excite remarkable coherence on high frequency transitions. We have perform classical calculations and compare it with results of *ab initio* calculations using TDDFT for several atoms and simple molecules interacting with strong optical fields. We compare efficiency generation with the efficiency of high harmonic generation approach, and discuss the CEP effects and possible applications of the results to excitation of nuclear transitions.

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