Abstract Submitted
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Very high-order harmonic generation from Ar atoms and Ar^+ ions in super intense pulsed laser fields[1] JUAN J. CARRERA, SHIH-I CHU, Department of Chemistry, University of Kansas, Lawrence, Kansas 66045, XIAO-MIN TONG, Physics Department, Kansas State University, Manhattan, Kansas 66506 — We present an *ab initio* nonpertubative investigation of the mechanisms responsible for the production of very high-order harmonic generation (HHG) from Ar atoms and Ar^+ ions by means of the self-interaction-free time dependent density functional theory recently developed [1]. Further, by introducing an effective charge concept, we can study at which laser intensity the contribution to the high-energy HHG from Ar^+ ions precede over the Ar atoms. Comparing the HHG behavior from Ar atoms and Ar^+ ions in super intense laser field, we conclude that the high energy HHG observed in the recent experiment [2] originated from the ionized Ar atoms. [1] J.J. Carrera, S.I.Chu and X.M.Tong, Phys. Rev. A (submitted) [2] Gibson, et. al., PRL 92, 033001 (2004)

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