

Abstract Submitted
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Multielectron effects in high order harmonic generation: ellipticity and fractional harmonics¹ YUQING XIA, AGNIESZKA JARON-BECKER, JILA and Department of Physics, University of Colorado — Using time-dependent density functional theory, we have studied multi-electron effects on high harmonic generation spectra and ellipticity. Our simulation results for ellipticity are in excellent agreement with two sets of experimental results and reveal that ellipticity is very sensitive to laser intensity, multielectron effects. Further analysis shows that for example at least three orbitals, HOMO, HOMO-1 and HOMO-2 of N_2 , contribute to the ellipticity patterns. We also discovered the fractional harmonics as a result of sub-dynamics between coupled orbitals in an open shell system. The position of fractional harmonics is determined by the (virtual) Rabi oscillation frequency.

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