A Density Functional Approach to High Harmonic Generation[1]

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MAN, Purdue Universtiy, THE SUSPENDERS TEAM — The role of the asymp-
totic behavior of the ground state exchange-correlation (xc) potential is examined
for the case of high harmonic generation (HHG) in N_2 via Time-dependent Density
Functional Theory (TDDFT) within the adiabatic approximation. High harmonic
generation (HHG) is a high-energy phenomenon that has been theoretically investi-
gated using the strong- field approximation (SFA) within the single active electron
approximation (SAEA) for small molecules. In the case of N2, experimental re-
sults for characteristic features of the harmonic emission suggest a breakdown of
those approximations. TDDFT bypasses the need for such approximations as it
accounts for all the electrons in the system; however, it requires approximations to
the xc-potential. We investigate how asymptotic corrections to the Local Density
Approximation (LDA) xc-potential influence the HHG spectrum.

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