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A real-time TDDFT scheme for strong-field interaction in Cartesian coordinate grid

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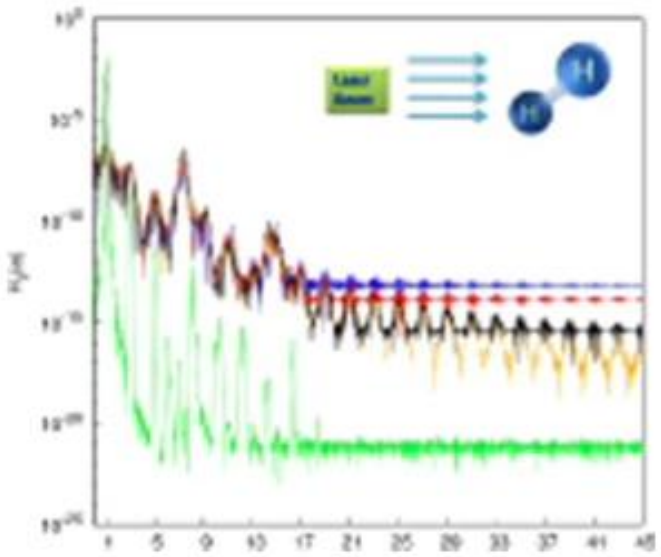

Abstract

In this communication, we present a new approach towards RT-TDDFT through time-dependent KS equations based on an *adiabatic eigenstate subspace* (AES) procedure. It introduces a second-order split operator technique in energy representation to implement the approximate TD propagator in AES. Most of the elements in TDKS matrix are directly computed in Cartesian coordinate grid (CCG). To demonstrate the internal consistency of our proposed scheme, we computed the TD dipole moment and high harmonic generation spectra using an adiabatic local density approximation. The comparison with available theoretical results ensures the feasibility of this proposed route.