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#068 - Quantum breathing frequency of a harmonically trapped quantum gas

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We present an explicit formula for the quantum breathing frequency ω_b of a harmonically trapped quantum gas with inverse power-law repulsion. We show how it is possible to express the average values of some important observables of the trapped quantum gas as a function of the breathing frequency. It is therefore argued that measurements of ω_b can accurately describe the state of harmonically trapped interacting particles. The formula for $omega_b$ is confirmed by numerical calculations for a system of electrons confined in a lateral (2D) quantum dot.

#069 - Efficient attosecond pulse generation from HHG spectra

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In this work we propose a method to obtain a single attosecond pulse through the manipulation of the HHG spectra emitted from simple systems driven by an intense laser field. In particular, by means of suitable frequency shift of the emitted radiation followed by subsequent pulses recombination, we show that it is possible the generation of ultrabroadband "quasi-continua" spectra leading to an isolated attosecond pulse. The importance of this technique lies in the possibility of using laser sources which are commonly available in most laboratories.