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Electron dynamics in nanostructures subjected to a laser field¹

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— Recent experiments (Zhu et al., J. Appl. Phys. 102, 114302 (2007); Gabor et al., Science, 325, 1367 (2009)) have shown that application of a laser field can significantly influence the electron dynamics in nanostructures. The study of such phenomena is vital both for fundamental understanding as well as for technological applications. We use time-dependent density functional theory to study how laser fields affect electron dynamics in nanostructures. Examples include the enhancement of field emission from carbon nanotubes (CNT) and effects on transport properties of a CNT-based nanowire.

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