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Recollision with circular polarization FRANCOIS MAUGER, Universite de Sherbrooke, ADAM KAMOR, Georgia Institute of Technology, ANDRE D. BANDRAUK, Universite de Sherbrooke, CRISTEL CHANDRE, Centre de Physique Theorique, TURGAY UZER, Georgia Institute of Technology — Since its identification in the 90s, the recollision scenario has revealed to be very helpful in explaining many phenomena in atomic and molecular systems subjected to strong and short laser pulses, and it is now at the core of the strong field physics and attosecond science. For linearly polarized laser fields, the recollision scenario has been able to explain nonsequential double ionization (NSDI), high harmonic generation (HHG) and laser induced diffraction (LIED), just to cite them. The same scenario also predicts the absence of recollision when the field is circularly polarized, therefore leading to the absence of NSDI, HHG or LIED. Recently, the influence of the ellipticity of the laser has drawn an increasing level of interest in the strong field community as it is seen as a way to control the electronic dynamics and, for instance, HHG. Using classical models, the common belief of the absence of recollision with circularly polarized laser fields has been proven wrong [1]. In my talk I will present classical and quantum evidence of the presence of recollision with circular polarization. I will discuss the conditions under which such recollisions happen and what they imply.

[1] Phys. Rev. Lett. - **105**, 083002 (2010).

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