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Atomic and Molecular Processes in a Bicircular Laser Field

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We consider various atomic and molecular processes induced or assisted by a bicircular laser field. Bicircular field, which consists of two coplanar counter-rotating circularly polarized fields of frequency $r\omega$ and $s\omega$ (r and s are integers), possesses particular dynamical symmetry. In the case of polyatomic molecules, this symmetry can be adjusted to the symmetry of the molecular Hamiltonian and used to investigate the molecular symmetry. For example, in high-order harmonic generation process, for polyatomic molecules having the C_{r+s} symmetry, only the harmonics $n = q(r + s)\pm r$, $q = 1, 2, \dots$, are emitted having the ellipticity $\varepsilon_n = \pm 1$. We illustrate this using the example of the planar molecules BH_3 and BF_3 , which obey the C_3 symmetry. We will also present results for high-order above-threshold ionization (HATI) of atomic and molecular systems. The concepts of spin-dependent rescattering and attospin will be explained.

Voditelji seminara IF-a: [Nataša Vujičić](#) i [Damir Starešinić](#)