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**“Circular dichroism in multiphoton processes”**

by

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A short review of a circular dichroism phenomenon in photon interaction with matter will be given including its application in different fields: drug production, parfumerie, study of magnetic materials etc. Until recently the circular dichroism was studied in condition of single-photon absorption. With the advent of free electron lasers in VUV and X-ray frequency regions new field of non-linear high-frequency (multiphoton) processes emerges. In the report, two different processes, which reveal circular dichroism, will be discussed: sideband formation in two-color multiphoton ionization of atoms and resonant multiphoton ionization of Rydberg states in two-color experiments. Theoretical approaches to the description of circular dichroism will be presented and also recent experiments where circular dichroism in multiphoton ionization has been observed and used for measuring the circular polarization of soft X-ray pulses.