

# Photoelectron elliptical dichroism spectroscopy of resonance enhanced multiphoton ionization

## Content

The resonance-enhanced multiphoton ionization of chiral molecules by elliptically polarized laser pulses produces photoelectron angular distributions that are forward/backward asymmetric with respect to the light propagation axis. We investigate this photoelectron elliptical dichroism (PEELD) in the (2+1)-photon ionization of fenchone molecules, using wavelength tunable femtosecond UV pulses. We show that the photoelectron elliptical asymmetry is extremely sensitive to the intermediate resonant states involved in the ionization process, and enables to reveal electronic couplings that do not show up so clearly when using circularly polarized light. Using elliptically polarized laser pulses in resonance-enhanced multiphoton ionization enables modifying the anisotropy of excitation as well as the multiphoton absorption probabilities. Scanning the ellipticity thus considerably enriches the photoelectron spectroscopy.

[1] Beauvarlet S., Bloch E., Rajak D., Descamps D., Fabre B., Petit S., Pons B., Mairesse Y. and Blanchet V.

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