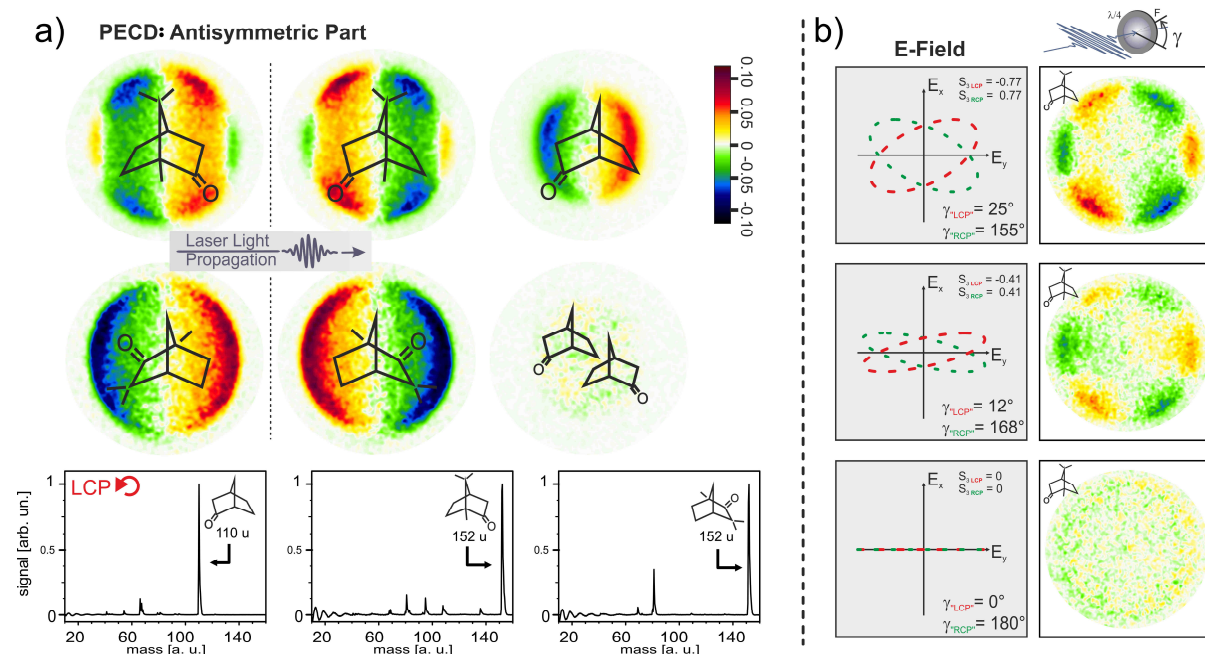


Photoelectron Circular Dichroism of Chiral Molecules from Multi Photon Ionization with Femtosecond Laser Pulses: Intensity and Ellipticity studies

C. Lux¹, V. Brandenstein¹, J. Köhler¹, C. Sarpe¹, M. Wollenhaupt¹, T. Baumert¹

¹Institut für Physik und CINSaT, Universität Kassel, Experimentalphysik III
Heinrich-Plett-Straße 40, Kassel, 34132, GERMANY
chlux@physik.uni-kassel.de

Photoelectron Circular Dichroism (PECD) - i.e. the difference of the Photoelectron Angular Distribution (PAD) from ionization with left circularly polarized light and the PAD from ionization with right circularly polarized light - shows asymmetries in the electron emission from chiral enantiomers relative to the light propagation direction and was so far investigated using synchrotron radiation [1]. The magnitude of PECD is several orders larger than typically chiroptical asymmetries. A CD in ion yield was observed after Resonance Enhanced Multi-Photon Ionization (REMPI) in mass spectrometry of chiral molecules [2,3]. We have demonstrated that PECD on randomly oriented chiral enantiomers is accessible via a 2+1 REMPI using femtosecond laser pulses. We detected highly structured asymmetries in the $\pm 10\%$ regime [4]. In this contribution we present our recent findings on the bicyclic ketones Camphor, Norcamphor and Fenchone. From the results on variation of the laser intensity, we conclude an underlying dissociative ionization. The PECD can be unambiguously attributed to direct ionization of the parent ion (see Figure a). Ellipticity studies show the robustness of the PECD effect (see Figure b).



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