



Institut für
Angewandte Physik



Physikalisches
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UNIVERSITÄT **BONN**
RHEINISCHE
FRIEDRICH-WILHELMS-UNI-
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COLLOQUIUM „OPTICS AND CONDENSED MATTER“

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Laser-based sensing and driving of molecular chirality

Exploiting an electric dipole effect in ionization [1], photoelectron circular dichroism (PECD) is a highly sensitive enantioselective spectroscopy for studying chiral molecules in the gas phase using either single-photon ionization [2] or multiphoton ionization [3]. In the latter case, resonance-enhanced multiphoton ionization (REMPI) gives access to neutral electronic excited states. The PECD sensitivity opens the door to study control of enantiomers' coupled electron and nuclear motion. A prerequisite is a detailed understanding of PECD in REMPI schemes. In this contribution, I will report on our investigations on PECD with coherent light sources whose pulse durations span from femtoseconds to nanoseconds [4]. By this, we address impulsive excitation on the femtosecond time scale to highly vibrational state selective excitation in mixtures with the help of high-resolution nanosecond laser techniques [5]. Subcycle control of PECD in bichromatic fields will be discussed [6], as well as coherent control of the ion yield [7] and handedness.

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November 4th, starting with discussion at 17:00 h, talk at 17:15 h, live IAP lecture hall or via Zoom

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