Abstract Submitted
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Sub-Cycle Gating of Optical Chirality in the Photoionization of Chiral Molecules ETIENNE BLOCH, University of Bordeaux, SHAKED ROZEN, Weizmann Institute of Science, ANTOINE COMBY, SANDRA BEAUVARLET, DOMINIQUE DESCAMPS, BAPTISTE FABRE, STEPHANE PETIT, VALERIE BLANCHET, BERNARD PONS, University of Bordeaux, NIRIT DUDOVICH, Weizmann Institute of Science, YANN MAIRESSE, University of Bordeaux, CELIA TEAM, WEIZMANN INSTITUTE TEAM — Circularly polarized radiation has been the tool of choice to investigate molecular chirality for decades. The recent progress in attosecond metrology has demonstrated the relevance of sub-cycle shaping laser fields to measure and control ultrafast photoionization processes. Here we ionize chiral molecules using a bilinear bichromatic laser field whose oscillation describes an eight '8' shape, rotating in opposite directions every half cycle. Even if this field has zero net (cycle-averaged) chirality, it produces strong asymmetries in the photoelectron angular distributions relative to the laser propagation direction which reverse with molecular handedness and are opposite in the upper and lower hemispheres [1-2]. Measuring the 3D photoelectron momentum distributions reveals the existence of fringe patterns, which are the signature of sub-cycle interferences in the strong field ionization. This holographic imaging provides a unique insight into the dynamical aspect of chiroptical response in the attosecond electron scattering process. [1] Demekhin *et al.*, Phys. Rev. Lett. **121**, 253201 (2018) [2] Rozen *et al.*, Phys. Rev. X **9**, 031004 (2019)

Etienne Bloch
University of Bordeaux

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