Plenary Talk PV VI Wed 8:30 Audimax

Topology meets strong-field physics — •Dieter Bauer — Institute of Physics, University of Rostock, 18051 Rostock, Germany

Strong-field physics was developed to describe the non-perturbative interaction of intense laser pulses with atoms and molecules in the gas-phase and led to the discovery of prominent phenomena such as above-threshold ionization and high-harmonic generation, including the creation of attosecond pulses. About ten years ago, strong-field physics in condensed matter started to attract more and more attention. In particular, it was found that intense laser fields can be used to steer ultrafast currents in solids and that high-harmonic generation offers an attractive approach to "image" condensed matter non-invasively on ultrashort time scales (without destroying the target). As modern condensed matter physics involves topological effects to a large extent, natural questions are "How do topological effects manifest in typical strong-field observables?" and "How can topological effects be created with lasers in the first place?" In my talk, I will give an introduction into topological strong field physics, discuss recent advances, and address the above questions.