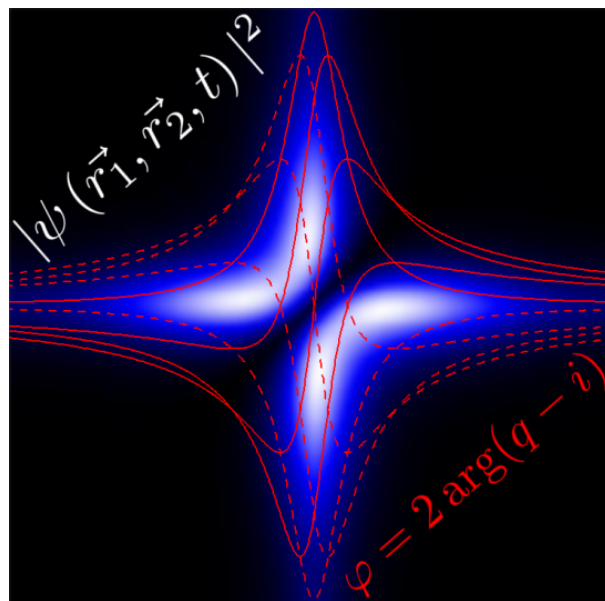


Atoms and molecules in tailored laser fields

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Intended Audience:

This course aims at an audience with a basic knowledge in atomic, molecular and optical physics, who is interested in a first glance or an update on the state-of-the-art of optical manipulation and corresponding applications, such as quantum control of electrons in atoms and molecules. Simulations and animations will visualize some of the main principles, while experimental setups are shown and discussed to provide practical know-how on the implementation in the lab.



Learning Objectives / Benefits

This course should enable the participant to:

- Mathematically describe the field of light pulses
- Understand the importance of the spectral phase
- Make an informed decision on a particular pulse shaper design for own implementations
- Estimate limitations of pulse shaping
 - o pre-/post-pulse artifacts by discretization
 - o bandwidth limitations
 - o space-time coupling
- Identify pros and cons of different pulse-shape measurement techniques
- Visualize and calculate fundamental dynamics of free and bound electrons in strong fields
- Understand fundamental quantum-control strategies
- Transfer fundamental principles to experimental applications