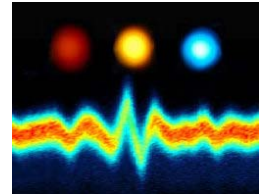


Max-Planck-Institute of Quantum Optics

Research Group: Attoselectronics

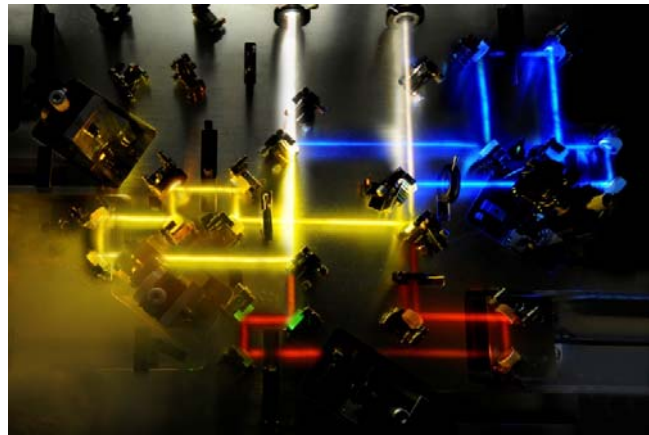


Diploma/Master's Thesis Position

Characterization of broadband few-fs pulses for Light-Field Synthesis

Background: With extremely short flashes of light we are now able to explore the inner workings of atoms, molecules and solids and trace the motion of electrons¹ in their native environment. One of the most important milestones in control of the microcosm is to precisely master the electric field of light in order to drive the motion of electrons on demand. To this end we synthesize light waves using the coherent superposition of light wavepackets covering different parts of the electromagnetic spectrum: the ultraviolet, the visible, and the near infrared. Based on this concept, we have recently been able to compose light waveforms that are temporally confined to less than a full oscillation of their carrier field².

Tasks: To design and setup of a novel pulse characterization apparatus operating over an extremely broad spectral range— from the near infrared to the extreme ultraviolet. To test the apparatus with extremely short pulses available in our laboratory and to use it in order to fine tune their properties. You will have the opportunity to take part in experiments with synthesized light pulses.



Qualifications: Interest in experimental-laboratory work. Physics/optics background. LabVIEW and or Matlab programming is a plus.

Contact:

Please send your CV and a complete list of university grades to:

Dr. Eleftherios Goulielmakis

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References:

1. E. Goulielmakis *et al.*, Nature 466, 739 (2010)
2. A. Wirth *et al.*, Science 1210268 Published online 8 September 2011 [DOI:10.1126/science.1210268]