BENEFICIARY OF MEDEA

Max Planck Institut for Quantum Optics

SCIENTISTS IN CHARGE:

- **Prof. Reinhard Kienberger**
- **Prof. Eleftherios Goulielmakis**

SCIENTIFIC EXPERTISE & FACILITIES:

- Attosecond Pulse Generation and Measurement
- Light Synthesis and Control
- Ultrafast techniques in Molecules and Solids
- Member of Laserlab Europe

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 641789

EARLY STAGE RESEARCHER

Dionisios Potamianos

PROJECT: *Electron delocalization at the molecule-surface interface Workpackage 1*

To further explore the influence of the environment in ultrafast electronic dynamics, **MPQ** (*ESR MPQ*) will investigate the electron delocalization processes in molecules and molecular nanosystems adsorbed on surfaces. Ultrafast dynamics will be explored in ultrathin films with well-characterized layer deposition and molecules such as bipyridine and metalloporphyrins adsorbed on titanium oxide, and fullerenes and peptides adsorbed on thin silica films. Attosecond pulses at optical and ultraviolet (UV) frequencies currently under development in **MPQ** will be used to generate coherent electronic dynamics in the valence shell of the molecules. Their subsequent dynamics will be traced by the use of attosecond transient absorption or photoelectron spectroscopy using an attosecond XUV probe. **MPQ** and **FORTH** will focus on the generation of intense UV few-cycle light pulses, using harmonic generation in dense gas combined with attosecond pulses to enable the time-resolved experiments. The combination in a pump-probe experiment of XUV attosecond and UV pulses will require the generation of high-energy pulses that will be performed in close collaboration with **TRUMPF**.

This project will be performed in collaboration with the group at **FORTH**(Dr. Paris Tzallas) and with the support from Dr. A. Assion (**FEMTO**). The project will strongly benefit from the collaboration with researchers at **TRUMPF (Thomas Metzger)**.

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