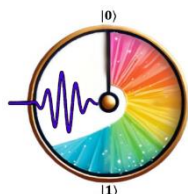




Chair of Attosecond and Strong Field Physics

<https://www.atto.uni-freiburg.de/de>

PhD Position in MSCA Network



QU-ATTO

QU-ATTO MSCA Network

<https://quatto.eu/>

Relevant Tasks

- Data acquisition
- Data analysis
- Simulation
- Programming

What we offer?

- Participation in European PhD Network
- High impact physics project
- Access to state-of-the-art facilities
- Supportive and collaborative group environment.

Required skills

- Master in Physics or Engineering
- Solid background in atomic, molecular and optical physics.
- Willingness to work in groups
- Curiosity and creativity.

Interested, please contact

Prof. Giuseppe Sansone:

giuseppe.sansone@physik.uni-freiburg.de

Novel Attosecond Metrology Approaches for Free-Electron Lasers.

As part of the recently funded **Marie Skłodowska-Curie Actions** Training Network Quantum information science and Ultrafast nonlinear coherent control at the ATTOsecond timescale (QU-ATTO) funded by the European Union's Horizon Europe research and innovation program, we are excited to offer a PhD position titled "*Novel Attosecond Metrology Approaches for Free-Electron Lasers.*"

The **QU-ATTO network** provides a comprehensive training program designed to develop the next generation of researchers in quantum information science and attosecond technology. PhD candidates within the network will benefit from a wide range of training activities, including webinars, scientific courses, and research-specific training modules offered by QU-ATTO partners.

The **research group** of **Prof. Sansone** has demonstrated the generation of attosecond pulses using the seeded free-electron laser FERMI along with the ability to shape the amplitude and phases of these pulses. Furthermore, the group developed a novel shot-to-shot timing tool using a Correlation Based Reconstruction of Attosecond pulses (CoBRA) and performed two-color photoionization measurements in spite of the stochastic relative phase of the two fields. This novel approach led to the observation of quantum interference and coherent control in noble gases with attosecond precision.

The **PhD candidate** will focus on advancing attosecond metrology schemes and extending their application in solid-state samples. This includes developing numerical codes to characterize the temporal structure of attosecond wavefronts by implementing covariance map analysis for cross-correlation experiments that combine XUV attosecond waveforms with infrared fields.

Further information:

P.K. Maroju *et al.*, Nature 578, 386 (2020).

P.K. Maroju *et al.*, Nature Photonics 17, 1 (2023).

For the application a CV, letter of motivation and transcript of records are required. Application deadline: 31.01.2025

Date of posting:

16.12.2024



Funded by
the European Union