

IOSA (IO-CSIC OSA-EPS student chapter) invites you to

# 4th IOSA scientific seminars

*OSA Traveling Lecturer guest speaker*

Prof. **URSULA KELLER**

*ETH Zurich*

**“Attosecond Ionization Dynamics  
and Time Delays”**

## PROGRAM

- 10:30 – 10:40 IOSA Presentation
- 10:40 – 11:30 Open seminar “Attosecond Ionization Dynamics and Time Delays”, Ursula Keller
- 11:30 – 12:00 Networking coffee break
- 12:00 – 13:00 Institute of Optics (CSIC) IOSA scientific seminars short paper presentations
- 13:00 Goodbye

**Thursday, 14th December 2017; 10:30 – 13:00**  
**SALÓN DE ACTOS, INSTITUTO DE QUÍMICA FÍSICA**  
**ROCASOLANO (C/ Serrano 119, Madrid)**



**6 (Republica Argentina)**

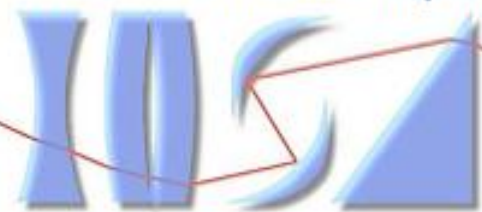
**CONTACT, REGISTRATION, CERTIFICATES OF ATTENDANCE & ADDITIONAL INFORMATION**

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<http://iosastudentchapter.osahost.org/>

**CSIC**  
IO-CSIC OSA-EPS student chapter



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# **4th IOSA scientific seminars**

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Prof. **URSULA KELLER**, *ETH Zurich*

## **“Attosecond Ionization Dynamics and Time Delays”**

*The basic motivation is to understand and ultimately control how matter functions at the electronic, atomic and molecular level. Initially our focus is on the question how quanta of energy and charge are transported on an atomic spatial and attosecond time scale. In principle, time dependent-processes in quantum mechanics are described by the time-dependent Schrödinger Equation (TDSE). The challenge is that the TDSE in most cases cannot be solved without approximations and that time is not an operator and therefore not a direct observable. This talk will review the recent progress in attosecond ionization dynamics and time delays in photoemission and tunnel ionization. Following the peak of an electron wavepacket for determining time delays can be tricky and often misleading.*

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