



© Magnus Bergström

INVITATION TO THE EIGHTH TALK OF THE PUBLIC LECTURE SERIES
OeAW – ISTA LECTURES

ATTOSECOND PULSES FOR STUDYING ULTRAFAST ELECTRON DYNAMICS

ANNE L'HUILLIER

Professor of Atomic Physics, Lund University

WELCOME

Martin Polaschek | Austrian Federal Minister, Education, Science and Research
Martin Hetzer | President, Institute of Science and Technology Austria

INTRODUCTION & MODERATION OF Q&A

Ulrike Diebold | Vice-President, Austrian Academy of Sciences

JANUARY 29, 2024
06:00 P.M.
AUSTRIAN ACADEMY OF SCIENCES, FESTIVE HALL
DR. IGNAZ-SEIPEL-PLATZ 2, 1010 VIENNA

The Austrian Academy of Sciences (OeAW) and the Institute of Science and Technology Austria (ISTA) initiated a joint lecture series in 2016, aiming to bring to Austria speakers of the highest international standing, active in fields that are of mutual interest to both institutions and to a wider public. The lecture series will be continued with a talk given by Nobel laureate Anne L'Huillier, who is Professor of Atomic physics at Lund University, and Corresponding Member abroad of the Austrian Academy of Sciences.

Anne L'Huillier is a French/Swedish physicist working on the interaction between short and intense laser fields and atoms. Born in Paris in 1958, she defended her thesis on multiple multiphoton ionisation in 1986 at the Université Pierre et Marie Curie, Paris and the Commissariat à l'Energie Atomique (CEA). She obtained a permanent research position at CEA the same year. She was a postdoc at Chalmers University of Technology in Gothenburg in 1986 and at the University of Southern California, Los Angeles in 1988. She was a visiting scientist at Lawrence Livermore National Laboratory in 1993. In 1995 she became an associate professor at Lund University and in 1997 she was appointed professor of physics. Anne L'Huillier is foreign associate of the French Académie des Sciences, foreign member of the Accademia Nazionale dei Lincei in Italy, corresponding member abroad of the Austrian Academy of Sciences, international member of the National Academy of Sciences (USA), and member of the Royal Swedish Academy of Science. She was awarded the Nobel Prize for Physics in 2023 along with Pierre Agostini and Ferenc Krausz for experimental methods that generate attosecond pulses of light for the study of electron dynamics in matter.

Abstract

Extreme ultraviolet light sources based on high-order harmonic generation in gases are now used in many areas of science. The radiation consists of a train of extremely short light bursts, in the 100-attosecond range, allowing for outstanding temporal resolution. This presentation will give a short historical perspective on this field of research, as well as an introduction to the physics of these XUV sources.

Attosecond pulses have enabled the study of photoionization of atoms and molecules in a completely new way. Through the availability of synchronized probe fields, together with interferometric measurements, it has become possible to measure the incredibly small-time delay in photoionization, a concept introduced by E. Wigner in 1955, and to characterize the quantum state of a photoelectron.

CONTACT: Andrea Windegger (OeAW), andrea.windegger@oeaw.ac.at

PLEASE REGISTER [HERE](#)