

**Plenary Talk**

PV I Mon 10:00 RW 1

**From extreme nonlinear optics to ultrafast atomic physics —**

•ANNE L'HUILLIER — Department of Physics, Lund University, Sweden

The interaction of atoms with intense laser radiation leads to the generation of high-order harmonics of the laser field, which, in the time domain, corresponds to a train of pulses in the extreme ultraviolet (XUV) range and with attosecond duration. This presentation will introduce the physics of high-order harmonic generation (HHG) and describe recent developments concerning pulse energy and repetition

rate of these sources. Compact high-repetition rate HHG set ups and in contrast long HHG beam lines with high pulse energy will be described and their applications briefly discussed.

The short pulse duration and broad bandwidth of attosecond pulses allow us to measure the phase and amplitude of an electronic wave packet using interferometric techniques. This gives us access to the temporal dynamics of the process that led to this wave-packet. We will describe some of these applications, and in particular recent results concerning dynamics of photoionization both in a flat continuum as well as close to resonant autoionization states.