



PRESS RELEASE

Sofja Kovalevskaja Prize for Dr. Reinhard Kienberger

Dr. Kienberger, a research scientist at Max Planck Institute of Quantum Optics in Garching (near Munich), has received this year's Sofja Kovalevskaja-Prize of Alexander von Humboldt Foundation. This prize is given to excellent junior scientists from foreign countries. The award recognizes Dr. Kienberger's "excellent research work", in particular his contributions to the "first generation and measurement of attosecond-pulses, to the steering of electrons on attosecond time scales, and to the development of a system capable of measuring time intervals of 100 attoseconds duration."

Dr. Reinhard Kienberger comes from Saalfelden in Austria. He got his Ph.D. at the Technical University of Vienna in 2002 on the subject "Subfemtosecond XUV Pulse Generation and Measurement". In 2004 he received the APART grant (Austrian Programme for Advanced Research and Technology) of the Austrian Academy of Sciences, which enabled him to spend 10 months at the Stanford Linear Accelerator Center (SLAC) at Stanford University (USA) in the same year. Since 2005 he works as a research scientist in the "Attosecond and High-Field Division" of Prof. Ferenc Krausz, Director at MPQ, being in charge of the attosecond projects.

Attosecond pulses (an attosecond= 10^{-18} seconds) are generated when perfectly controlled femtosecond pulses (a femtosecond= 10^{-15} seconds) hit gas atoms in a so-called "target". The strong electric field of the pulses first knocks an electron from the atom and then immediately hurls it back. The recaptured electron emits the absorbed energy as a short light flash in the XUV (extremely short-wave ultraviolet) region. The flash emitted by a single atom is immeasurably weak. However, millions of atoms are targeted by the femtosecond pulses and subsequently emit attosecond flashes perfectly synchronized with millisecond timing. This generates a strongly collimated laser-type beam of light pulses with a duration of 250 attoseconds.

One of the reasons why scientists are interested in generating attosecond pulses is the fact that atomic processes take place on attosecond timescales. Thus control and real-time observation of the motion of electrons in atoms with high resolution in both time and space is one of their major goals.

The Sofja Kovalevskaja-Prize is donated by the German Ministry for Education and Research. It is endowed with 1.05 million euros that can be spent over a period of four years. This prize will enable Dr. Kienberger to establish his own junior research group (within the division of Prof. Krausz). "Recipients of this prize shall be able to concentrate on excellent and innovative research they are interested in, as free as possible of administrative constraints. That way German research will become more international", explains Alexander von Humboldt foundation. The official ceremony will take place in Berlin on 7 November, 2006.

Further information:

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