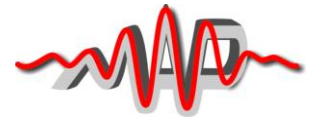




PRESSE-INFORMATION
Max-Planck-Institut für Quantenoptik
und
Munich Centre for Advanced Photonics



Garching, 22 July 2011

Professor Matthias Kling receives Röntgen Prize 2011

Professor Matthias Kling, leader of the “Attosecond Imaging” Research Group at the Max Planck Institute of Quantum Optics, Garching (near Munich), has received this year’s Röntgen Prize from the Justus-Liebig-University of Gießen, Germany, in recognition of his contributions to the development of “attosecond nanophotonics”. This award, sponsored by several private companies from the City of Gießen, is primarily devoted to young scientists who have done excellent work in fundamental radiation physics or fundamental radiation biology.

Matthias Kling, born in Hanover in 1972, studied physics at the Georg-August University, Göttingen, where he earned his diploma in 1998. Successively, he studied laser physics at the Friedrich-Schiller University, Jena, and performed research on the femtosecond spectroscopy of peroxide molecules in the group of Professor Michael Buback in Göttingen. Following his dissertation and a postdoctoral stay in Göttingen, he joined Professor Charles Harris in 2003 at the University of California (UC) Berkeley, USA, as a “Feodor-Lynen” research fellow of the Alexander von Humboldt Foundation. Toward the end of 2004, he joined the group of Prof. Marc Vrakking at AMOLF in Amsterdam, The Netherlands. Here, supported by a Marie-Curie stipend of the European Union, he started to investigate ultrafast processes in atoms and small molecules on an attosecond time scale (one attosecond is a billionth of a billionth of a second). Since 2007, Professor Matthias Kling has been leading the DFG-funded Emmy-Noether group “Attosecond Imaging” at the Max Planck Institute of Quantum Optics, where his group is part of the Laboratory for Attosecond Physics of Prof. Ferenc Krausz. Since 2009, Professor Kling also holds an assistant professorship at Kansas State University in Manhattan, KS, USA, and in 2011 he became a visiting professor at the King-Saud University in Riyadh, Saudi Arabia.



Prof. Kling’s team is performing research on the control and observation of collective electron motion on nanostructured surfaces and in isolated nanoparticles. For this purpose, they use ultrashort, intense near-infrared light flashes, consisting of only a few cycles, and attosecond light flashes in the extreme ultraviolet. Using these ultrashort light flashes, the researchers can observe processes such as the emission and acceleration of electrons on the natural, attosecond time scale of their motion. The experiments on isolated nanoparticles also offer an intrinsic nanometer spatial resolution. The team of Matthias Kling is furthermore collaborating with Ulf Kleineberg from the LMU Munich in pioneering attosecond nano-microscopy. For these experiments, a special photo-electron emission microscope, developed by the team of Ulf Kleineberg, offers the possibility of resolving electron motion on nanostructured surfaces with the highest temporal and spatial resolution. The nano-microscope can be used to study

the control of electrons in nanostructures by light waves with unprecedented detail. Such studies are an important step toward the realization of lightwave nano-electronics, which has the potential to increase the speed of electronics by up to 5 orders of magnitude into the petahertz regime.

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Professor Kling performs the research on nanostructures in close collaboration with colleagues in Germany (Ulf Kleineberg (LMU Munich), Eckart Rühl (FU Berlin), Thomas Fennel (University of Rostock), and Ferenc Krausz), and in the US (Mark Stockman (GSU Atlanta, USA)).

The Röntgen Prize will be awarded on November 25th, 2011 at the official academic ceremony in Gießen. [OM]

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