Institutskolloquium

Am Mittwoch, **13. Dezember 2006, 16:00 Uhr** spricht:

Prof. Dr. Joachim Ullrich

Max-Planck-Institut für Kernphysik, Heidelberg

über

"Few-Particle Quantum Dynamics at Next Generation Light Sources"

Presently we witness a revolution in light-production in the VUV to the X-ray regime driven either by novel free electron lasers or by high-harmonic generation from a new class of upcoming high-performance lasers in the visible. These sources will, for the first time, provide intensities, coherence properties, short-time and pump-probe options in the VUV to X-ray regime comparable to those presently realized by intense, ultra-short laser pulses in the visible.

At least three completely new fields of research are expected to open up in atomic and molecular physics. First, the huge integrated radiation flux enables to investigate in unprecedented detail dilute samples, like highly charged ions, negative atomic ions, negative or positive state-prepared molecular and size-selected cluster ions. Second, the tremendous peak intensities allow investigating fundamental non-linear processes where few photons interact with few electrons in atoms, molecules, clusters or ions. Third, the short-time properties will enable unique pump-probe experiments with any of these targets.
In the talk, these novel fields will be highlighted and first results of pioneer experiments at the **F**ree Electron **Las**er at **H**amburg (FLASH) will be presented in some detail.

Ort: **Max-Born-Saal, MBI, Max-Born-Str. 2a**

Interessenten sind herzlich eingeladen.

Prof. Dr. W. Sandner

■ **Direktor Bereich A** Prof. Dr. Ingolf V. Hertel ■ **Direktor Bereich B** Prof. Dr. Wolfgang Sandner ■ **Direktor Bereich C** Prof. Dr. Thomas Elsässer ■ **Bereich Z** Dr. Jörn Kändler

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