



18th, 19th, 20th November 2013
CUI/IMPRS-UFAST Lecture

Kenichi L. Ishikawa

Graduate School of Engineering, The University of Tokyo

Laser-matter interaction: from atoms to tissue

With recent progress in laser technology, it is increasingly important to understand laser-matter interaction for atomic and molecular physics research as well as for materials processing and medical applications. This course first focuses on high-intensity femtosecond laser-atom interaction. Topics include laser fundamentals, above-threshold ionization, tunneling ionization, and high-harmonic generation. The course will also treat atomic ionization dynamics by femtosecond (from free-electron lasers) and attosecond (from high-harmonic generation) extreme-ultraviolet pulses. The last topics of the course will include different types of laser-tissue interaction and the medical applications of laser such as photodynamic therapy, percutaneous laser disc decompression, and laser in situ keratomileusis.

- L1. Laser fundamentals
- L2. Atom in an intense laser field
- L3. High-harmonic generation
- L4. Femto- and attosecond ionization dynamics
- L5. Laser-tissue interaction and its medical applications

Date	Item	Time	Location
18.11.13(Mo)	L1	14:00-16:00	Center for Optical Quantum Technologies (ZOQ) seminar room (Bld. 90, ground floor)
19.11.13(Tu)	L2	09:30-11:30	
	L3	14:00-16:00	
20.11.13(We)	L4	09:30-11:30	Institute for Laser Physics (ILP) seminar room (Bld. 69, ground floor)
	L5	14:00-16:00	