



复旦大学物理系 物质科学报告

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Location: Physics Building (Jiangwan), Room C108

Strong-Field Applications of Intense Long wave Laser Pulses

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High-energy few-cycle femtosecond mid-IR lasers attract much attention as prospective driver sources for many strong-field applications because several key interaction parameters, such as critical power of self-focusing, ponderomotive energy of the pulse, the highest phase-matched photon energy in high-harmonic generation, etc., quadratically scale with the driver pulse energy.

The talk will review several approaches demonstrated at TU Wien that enable the generation of intense few-cycle mid-IR fields and multi-color pulses from various parametric amplification and post-compression schemes. We will then focus on several research highlights achieved with such long wave pulses in the recent years and present the state of the art in the generation of coherent and incoherent X-ray pulses, generation of high-energy THz pulses from air plasma, filamentation in air and relativistic electron acceleration.



Andrius Baltuška received the diploma in physics from Vilnius University, Lithuania, in 1993 and a Ph.D. degree in chemical physics from the University of Groningen, The Netherlands, in 2000. Since 2006 he is a full professor at the faculty of Electrical Engineering and Information Technology, Vienna University of Technology. His group (<http://atto.photonik.tuwien.ac.at>) works on the development of intense ultrafast laser and parametric amplifiers and applications of fully controlled optical pulses in ultrafast spectroscopy and high-field physics. He received a European Young Investigator Award (EURYI) from the European Science Foundation (2004), Ignaz L. Lieben Award from the Austrian Academy of Sciences (2006) and a Starting Grant (Consolidator) of the European Research Council (2011). In 2016 he was elected a corresponding member of the Austrian Academy of Sciences (ÖAW).

