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NEXT LITE-SEMINAR

"Electro-optic sampling of near-infrared waves and attosecond polarization spectroscopy"

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Date and Time: **Friday, April 8th, 2016, 14:00 ct**

Location: **TU Wien, Photonics Institute**
Gußhausstraße 27-29, 1040 Vienna,
Seminar room CBEG02, ground floor.

Host: K. Unterrainer

Abstract

Direct access to the electric field waveform of near-infrared and visible light allows for a detailed view of light-matter interaction on the femtosecond or even attosecond time scale. Two techniques, attosecond streaking and electro-optic sampling, are able to provide this access, the latter being adopted from the THz frequency range and recently improved in temporal resolution to the point where field oscillations at 240 THz can be observed. I will show how this has enabled direct reconstruction of the time-dependent nonlinear polarization of materials interacting with strong laser fields and the observation of sub-cycle energy exchange between a laser field and solid and atomic targets. This approach to attosecond physics is capable of providing sub-femtosecond time resolution without requiring the sample under study to interact with extreme ultraviolet radiation, presenting a number of new opportunities for experiments with extreme temporal resolution.

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