

## Seminar über Ultrafast Science and Technology

**Referent:** Zoltán Ollmann, Institute of Applied Physics, University of Bern

**Titel:** High energy THz pulse generation by tilted pulse front pumping

High-intensity and high-field-strength THz pulses are required for nonlinear THz spectroscopy, particle manipulation, and many other (medical, security) applications. Optical rectification of femtosecond laser pulses in nonlinear crystals is an efficient method for the generation of picosecond THz pulses. THz generation by optical rectification in collinear geometry is possible in ZnTe when pumped at 800 nm. However, two-photon absorption limits the useful pump intensity, and thereby the pump-to-THz conversion efficiency. An alternative material for optical rectification is LiNbO<sub>3</sub>, since its nonlinear coefficient is very high and at 800 nm pumping 2 photon absorption is not possible for this material. The refractive index of LiNbO<sub>3</sub> is much higher in the THz range than in the near-IR, so collinear velocity matching is not possible. However, velocity matching condition can be fulfilled with tilted-pulse-front-excitation. This talk will give an overview the principles of tilted pulse front excitation, some numerical and experimental results and some other useful THz pulse generation techniques.

**Zeit:** Donnerstag, 23.03.2017, 11:15 Uhr

**Ort:** Hörsaal B116, Gebäude exakte Wissenschaften, Sidlerstrasse 5, Bern, Schweiz