

THz Emission Spectroscopy on organic semiconductors

P. Krauspe¹, M. Causa¹, J. Brauer¹, D. Tsokkou¹, N. Banerji^{1*}

¹University of Bern

In the terahertz emission spectroscopy (TES) sample systems are investigated on an ultrashort timescale. With optical excitation of the material with a light pulse on the order of tens of femtoseconds and subsequent acceleration of photoexcited carriers, we create electric fields in the THz frequency range. Using free space electro optic sampling (FSEOS) these fields are recorded and a full waveform is reconstructed. From that waveform we extract material properties and obtain information on the generation and recombination rates of photoexcited carriers through comparison with simulations. Assumptions for the simulations are justified with additional experiments using THz-Time domain spectroscopy (THz-TDS). Here we present a proof of concept and first measurements to show the feasibility and versatility of this novel technique.