

New technical concepts for velocity map imaging in a THz streak camera

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In this presentation the development of a novel type of streak-camera enabling multi-dimensional electron spectroscopy implying energy, angular as well as time resolution is reported. The new setup is based on a Velocity Map Imaging (VMI) spectrometer in collinear geometry for electron spectroscopy and Terahertz streaking adding time resolution to the setup. A highly efficient detection scheme being operational at comparably

bad vacuum conditions allows for highest target densities up to $3 \times 10^{22}/\text{m}^3$ making the setup particularly suited for low photon flux laboratory sources. The detection efficiency is explicitly calculated. In the proof of principle experiment xenon photoelectrons are streaked and the ionizing and streaking pulses are characterized.

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