

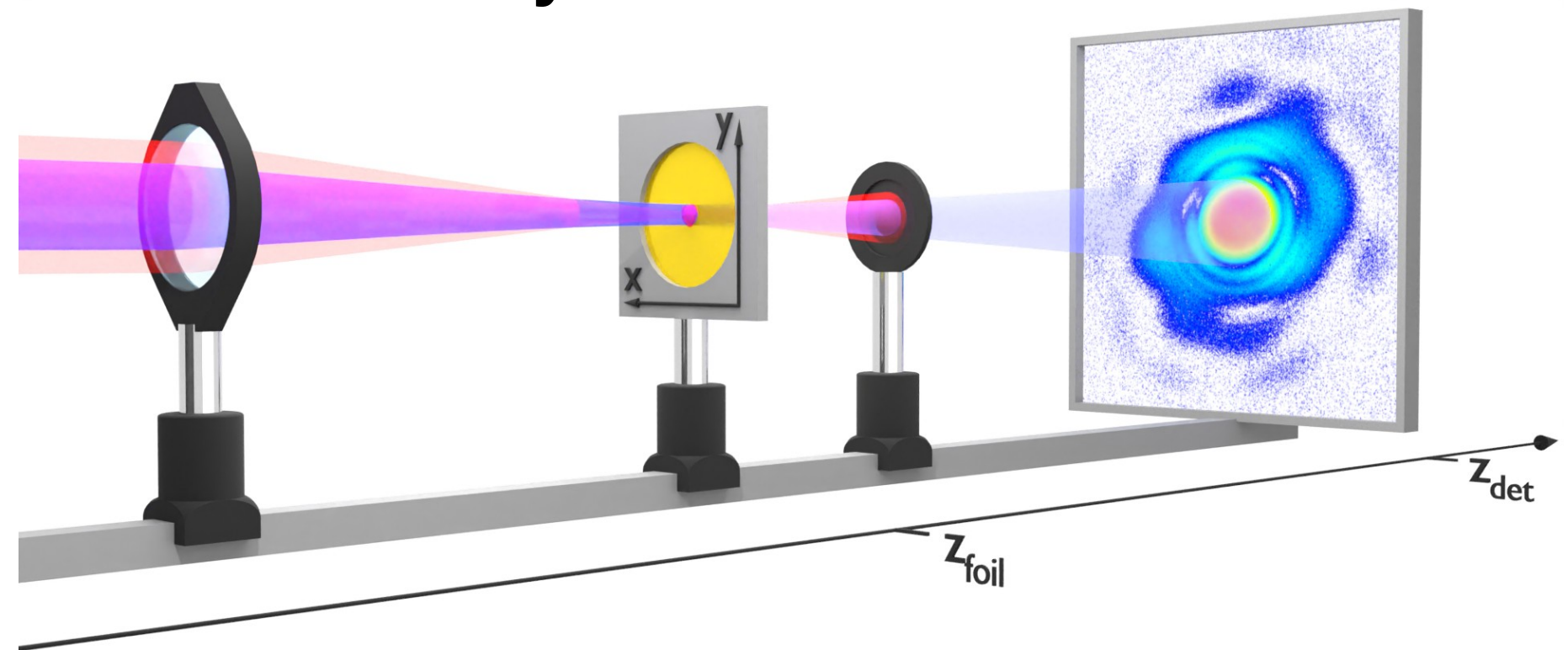
24th October 2024, 15:00

Tom Böttcher

Coherent Diffractive Imaging (CDI), Laser-Matter Interaction

Time-Resolved Diffractive Imaging of Laser Induced Dynamics in Thin Gold Foils

I will present an experimental method for observing the plasma dynamics in laser-excited thin 30 nm gold foils using single-shot pump-probe coherent diffractive imaging. Our targets are excited by a focused femtosecond (fs)-800 nm pump pulse. The excited foil is imaged by a low intensity fs-400 nm pulse with variable time delay from 50 fs to 2 ns. From the diffraction patterns of the probe pulse for different time delays the 2D-spatial resolved complex transmission is reconstructed by a phase retrieval algorithm, giving access to the ultrafast excitation (fs-ps regime) as well as the melting and ablation (ps-ns regime) dynamics.



The setup used for coherent diffractive imaging of ultrafast plasma dynamics in thin gold foils. The screen shows an exemplary diffraction image captured 127 picoseconds after excitation of the gold foil.

Talk and slide language: English **Location:** Great Lecture Hall, HS1, Institute for Physics, Albert-Einstein Str. 24