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【804】 Coherent diffraction imaging with micrometer-sized liquid helium droplets

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Coherent diffraction imaging (CDI) allows to track a single nanoparticle's shape and ultrafast laser-induced dynamics. In our experiments, we illuminate liquid helium droplets of sizes ranging between hundreds of nanometers and a few micrometers with intense XUV pulses created by our lab-based high-harmonic generation (HHG) source. Simultaneous to recording the CDI pattern, our setup allows us to monitor the spectrum and profile of the transmitted XUV beam after the interaction. I will present results from our recent experiments and discuss possibilities for ultrafast absorption spectroscopy and simultaneous scattering on free-flying single particles towards spatiotemporally resolving ultrafast electron dynamics.

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