

Pump-probe with intense THz beam at FLASH

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FLASH at DESY, has a unique FEL scheme with a dedicated THz undulator installed downstream of the XUV undulators, providing soft X-ray beam and intense THz beam simultaneously with low jitter. The two beams are used to study matter in a broad range of applications, for example, studies of electronic decay in molecules, characterizing ultra-short XUV pulses, investigating coherent magnetization control, interactions of light with matter, or properties under extreme conditions. The THz beam at FLASH1 has its own unique features of intense pulse energies up to $150\mu\text{J}$ at high-repetition rates and broad tunable wavelengths. As part of the FLASH upgrading project, upgrading of THz beamline and diagnostics is planned, which involves operating THz beamline fully in parallel with the XUV FEL, and designing a new semi-permanent endstation. The upgrade is planned to be completed in 2025.