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Probing Material Dynamics Using Terahertz Time-Domain Spectroscopy

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Terahertz time-domain spectroscopy and related techniques (e.g. THz emission spectroscopy, optical-pump THz-probe spectroscopy) comprise a unique experimental toolset for investigating the dynamics of a host of technologically and scientifically relevant materials. This talk will highlight the ease with which these techniques can be implemented and present recent experimental results including investigations of quasiparticle dynamics in correlated electron materials, terahertz emission from photoexcited ferromagnets, and the generation of far-infrared surface plasmon polaritons at metal dielectric interfaces.