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【713】Time and spin resolved photoemission: A new look at ultrafast magnetism

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Ultrafast demagnetization is a long standing problem of solid state physics, as the transfer of angular momentum on the femtosecond time scale is not understood.
Spin and time resolved photoemission experiments are able to separate the different aspects of spin dynamics: Close to the Fermi energy, we observe an initial loss of the spin polarization. This is caused by the initial spin flips as well as by transport effects. The driving force for the spin transport is the temperature-induced shift of the spin-split chemical potentials. This leads to the extension of spintronics to the femtosecond domain. Opportunities for spin and time resolved band structure imaging at FELs will be discussed.

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