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【605】 Observation of Ultrashort Spin Voltage and -Accumulation

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The generation of spin current pulses by laser-driven demagnetization links the field of ultrafast magnetism to spintronics. This work presents the study of spintronic quantities (spin voltage, spin current and spin transport) on the femtosecond time scale by spin and time resolved photoemission experiments. A thin iron sample is excited by an 800 nm laser pulse to measure the chemical potentials of the minority- and majority spins, which form the “spin voltage”. Depositing a thin gold film onto iron samples allow us to observe spin injection and -accumulation, which can be described as a “spin capacitance”.

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