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# Spin Hall effect as a probe of magnetic fluctuation and a.c. spin currents

Abstract Spin Hall effect (SHE) and its inverse enable the interconversion between charge and spin currents with strong spin-orbit interaction, and have been widely used for the the generation and detection of spin currents. In this talk, I will present two of experimental works on the spin currents and spin Hall effect. One is the SHE in a weak ferromagnetic metal in the vicinity of the magnetic phase transition where the spin-/charge- currents conversion reflects a nonlinear magnetic susceptibility. It shows that the spin current could be used as a sensor for detecting small magnetic fluctuations. The other is the large SHE of a.c. spin current generated by the spin pumping in a hetrostructure. Such a.c. spin current is at least one order of magnitude larger than the d.c.ones, could significant improve the efficiency of spin pumping and related spintronic devices.

**About speaker**

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*Photoed by Xiaodong Hu*