

Direct observation of spin current based on XFMR

C. Hwang^{*}

Center for Nanometrology Korea Research Institute of Standards and Science

Spin-current based on spintronics has drawn a lot of attention due to its simple structure compared with other spin technology. Although this field has drawn a lot of attention for the last ten years, the observation of spin current has remained indirect, being measured through the effect of the spin current on other physical entities. We will show a new method of direct observation of spin currents by synchronizing a microwave waveform with the synchrotron x-ray pulses. Ferromagnetic resonance of the magnetic layer is used to pump a pure spin current into the spacer layer, and then directly probe the spin current in this spacer layer by a time-resolved x-ray magnetic circular dichroism (XMCD).