

# Magnetization dynamics of Co/Pt multilayer films over wide ranges of timescale

Dong-Hyun Kim

Department of Physics, Chungbuk National University, Cheongju 28644, Chungbuk, South Korea

(Email: donghyun@cbnu.ac.kr)

Magnetization dynamics on ultrafast time scales has recently attracted much attention due to possible application for fast-operating spintronic devices. Recently, huge interest has grown on the photo-induced demagnetization behavior of ferromagnetic system, where high energy photon pulse of femtoseconds pulse widths hit the sample with excitation of spin, electron, and lattice in the solid. On this non-equilibrium time scale, novel physical phenomena resulted from mutual intense interaction among spin, electron, and lattice are exhibited with a rich context [1]. On the other hand, magnetization reversal phenomenon mediated by magnetic domain wall evolution is a classical but a fundamental phenomenon [2], which should be clearly understood for further spintronic applications. We report magnetization reversal behavior of Co/Pt multilayers by means of magneto-optical Kerr effect (MOKE) to investigate magnetization dynamics over wide temporal scales ranging from femtosecond to kilosecond.

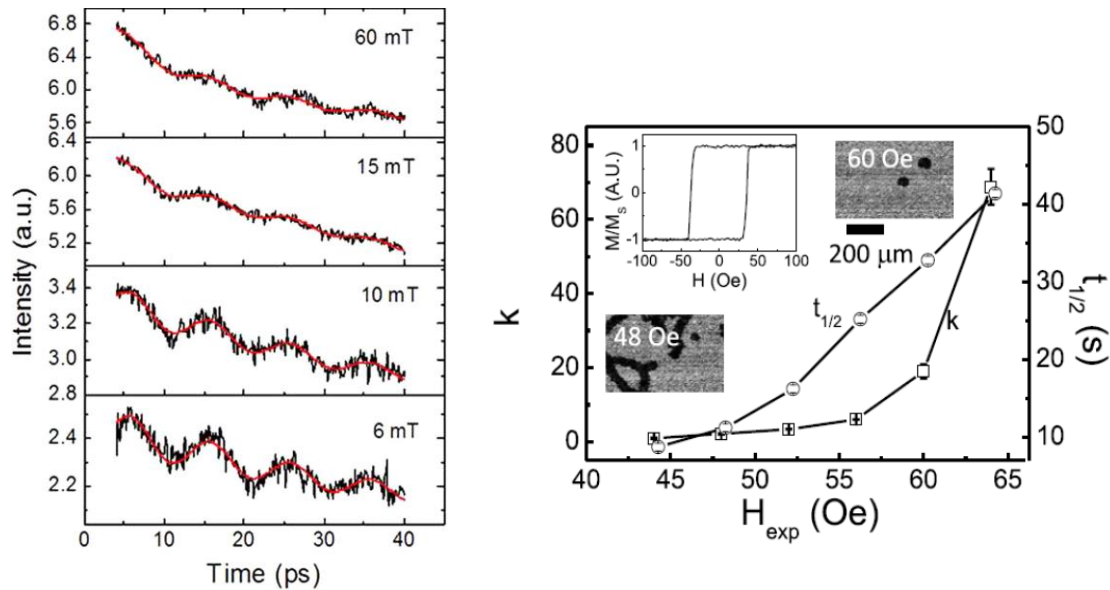


Figure 1. (Left) Photoinduced demagnetization dynamics measured by time-resolved magneto-optical Kerr effect and (right) magnetization reversal behavior with domain structures and hysteresis loop of Co/Pt ferromagnetic multilayers[1,2].