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Inelastic Neutron Scattering on Exchange-Biased Co/CoO Core-Shell Nanoparticles GLENN STRYCKER, SUE INDERHEES, MEIGAN ARONSON, University of Michigan, YIMING QIU, JULIE BORCHERS, NIST — We report results of inelastic neutron scattering on exchange biased Co/CoO core-shell nanoparticles. Data were taken using time-of-flight techniques at the Disk Chopper Spectrometer (DCS) at the NIST Center for Neutron Research, which allows observation of the dynamics of magnetic spin reversal over a range of energies and length scales. Above the blocking temperature (T_B) the scattering is quasi-elastic, with an amplitude that peaks at the $(\frac{1}{2} \frac{1}{2} \frac{1}{2})$ anti-ferromagnetic CoO ordering wave vector. With decreasing temperature the quasi-elastic scattering narrows, consistent with the freezing of longitudinal moment fluctuations, and becomes resolution limited near T_B . Below T_B we observe a spectrum of inelastic excitations arising from a log-normal distribution of energy barriers. We will discuss in detail the length scale and temperature dependences of these features. Work at the University of Michigan performed under the auspices of the Department of Energy.

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