Electrodeposition of Multilayered Co/Cu Nanowires

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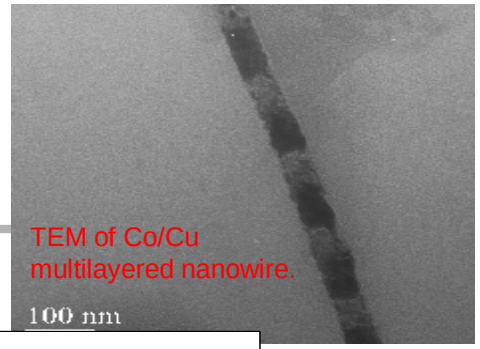


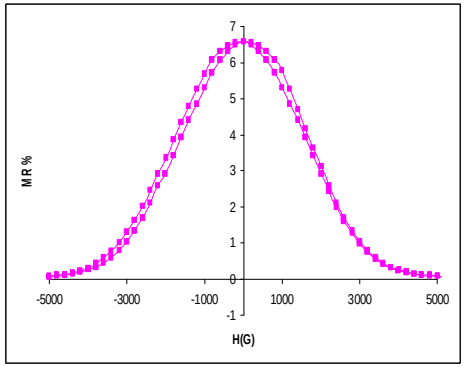
Motivation:

- Measure Giant Magnetoresistance in Co/Cu Nanowires
- Understand Reversal Mechanisms

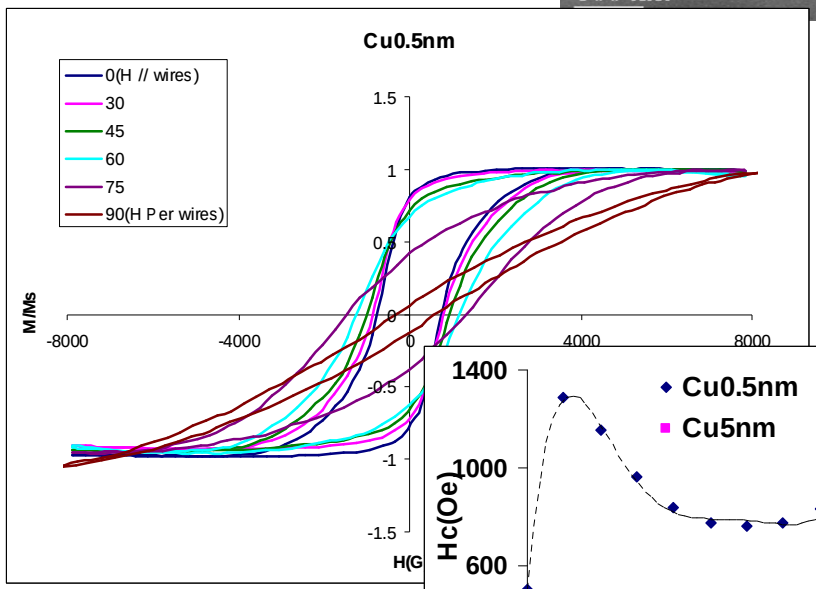
Experiment:

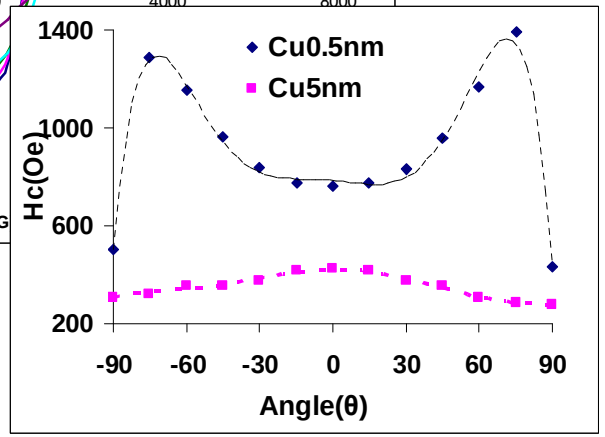
- Fabricate multilayered Co/Cu nanowires in ordered alumina template
- Control the thickness of Co and Cu layers and crystallography of Co layers
- Study the temperature and thickness dependence of GMR in multilayered Co/Cu nanowires

GMR of Co(5nm)/Cu(5nm) multilayered nanowire at room temperature



Results:





Experimental data of reversal angular dependence, together with temperature and perpendicular magnetization data, is enabling the various theoretical mechanisms of reversal in 1-D systems to be verified.

L. Tan and B.J.H. Stadler, "Fabrication and Magnetic Behavior of Co/Cu Multilayered Nanowires," *J. Materials Research* **21** no.11 2870-2875 (2006).
J. Zou, X. Qi, L. Tan, B.J.H.Stadler, "Nanoporous Silicon with Long-Range-Order using

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