Tailoring the Magnetic Behavior of FeGa/Cu Multilayered Nanowire Arrays

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Magnetostrictive Iron-Gallium (FeGa) nano-wires have tremendous potential as functional materials in micro and nano-transducers.

❑ A mechanism was proposed for electro-deposition of Fe-Ga alloys, and it was successfully used in fabricating reproducible FeGa/Cu multilayered nanowires (Fig. 1)

❑FeGa/Cu nanowire arrays exhibits anisotropic or isotropic magnetic behavior depending on the architecture (Fig. 2)

Magnetic behavior can thus be tailored by varying the aspect ratio of ferromagnetic FeGa and non-magnetic Cu layers.

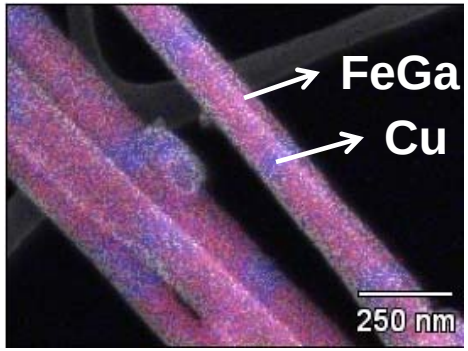

Fig. 1: EDS image of multilayered nanowires

Fig. 2: VSM of FeGa/Cu nanowire arrays