Galfenol Artificial Cilia Transducers (ACTs)

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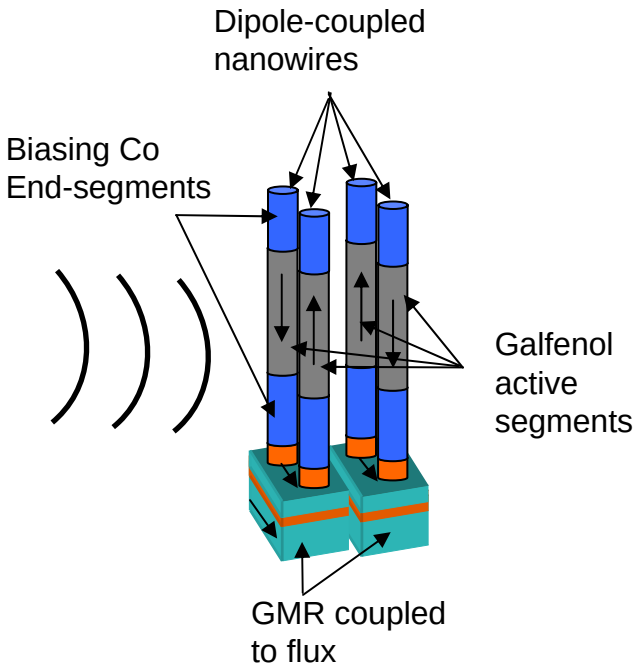
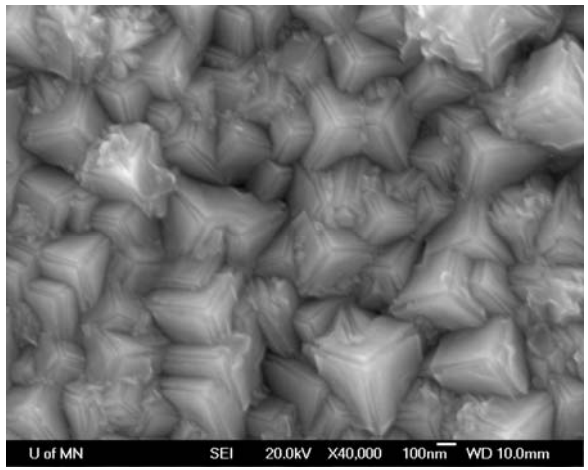
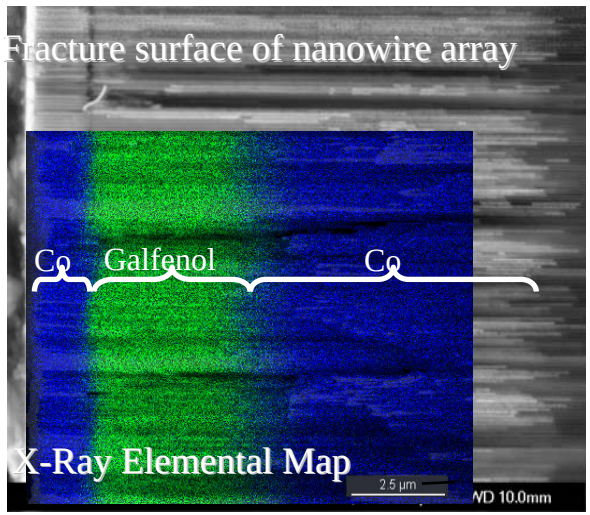
NNIN Facilities utilized: Characterization Facility & Nanofabrication Center



- The project goal is a device that uses magnetostrictive nanowire arrays to detect acoustic waves.
- When these nanowires resonate, they will generate local magnetic fields, which can then be transduced to electrical signals by GMR sensors (similar to hard drive heads).



- Electroplated thin films of Galfenol show grain morphology and composition using SEM and EDS, showing $Fe_{81.2}Ga_{18.8}$



- EDS of the arrays cross-section gives the chemical composition of the electrochemically deposited nanowire segments to help refine the engineering of the structures.