Galfenol Artificial Cilia Transducers (ACTs)
Bethanie J. H. Stadler (PI) & Patrick McGary
Electrical & Computer Engineering, University of Minnesota
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 $\text{Fe}_{81.2}\text{Ga}_{18.8}$.

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