

Title: Advanced Actuator Materials Based on Carbon Nanotube Composites
Type: Student
Awardee: Leonard S. Fifield
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Description: Carbon nanotubes have received much attention as a promising new material for applications including molecular-scale electronics, super-strong/lightweight mechanical reinforcement, hydrogen storage, catalysis, water filtration, sensitive chemical sensors, and electronic displays. Carbon nanotubes have also been shown to have great potential for use in actuator devices. In order for useful devices based on nanotubes to be realized, new processing techniques must be developed and the barriers that exist for device engineering must be addressed. This project seeks to unite the experience of a developed program of carbon nanotubes synthesis and preparation that exists at PNNL under the supervision of Chris Aardahl with the experience and expertise in carbon nanotube actuators that exists with Larry Dalton and Leonard Fifield at the UW. Combining the efforts of these two research groups will result in significant progress towards the realization of viable actuator devices that take advantage of the unique properties of carbon nanotubes.