Carbon Nanotube Electrical Contact Interfaces for Thermoelectrics
Sponsor: Cooling Technologies Research Center

Motivation and Goals
- To study the feasibility of using MWNT arrays to improve the performance of Peltier cooling devices
- Accurate characterization of contact resistance between mating arrays of MWNTs

Technical Challenges
- Patterned Growth of MWNT arrays on various substrates
- Isolation of individual constituent resistances

Electrical contact resistance has become a major source of parasitic loss in new nanoscale thermoelectric devices. CNT arrays offer the promise of reducing this resistance dramatically.

Technical Approach
- Photolithographic tools (spinners, mask aligners, etc)
- Metal evaporation
- PECVD synthesis of CNT arrays
- Four-probe electrical characterization
- Scanning electron microscopy

Electrical Characterization of MWNT Array Interface

Selected Publications