



Summary Slide: Environmental Health & Safety and Nanotoxicity **by Rockford Draper, University of Texas at Dallas**

- Materials often acquire new properties when they reach the nanoscale.
- The new properties of nanoscaled materials can result in unpredictable toxicity with adverse effects on people and the environment.
- The market for nanomaterials is expected to grow to \$3 trillion by 2015. Thus, the scale of the potential problem is very large.
- The issues involved in nanotoxicity are complex, ranging from basic science to regulation and implementation of responsible EH&S policies.
- Good science is needed to understand nanotoxicity so that solutions will be based on science, not irrational fears.
- The SRC is supporting basic studies on nanotoxicity through the University of Arizona Engineering Research Center (ERC) for Environmentally Benign Semiconductor Manufacturing.
- Sponsored by the SRC/ERC, a multidisciplinary research group at the University of Texas at Dallas is studying the nanotoxicity of carbon nanotubes and graphene oxide.
- We recently completed a study on the toxicity of carbon nanotubes and found that certain types of nanotubes were contaminated with small carbon fragments that were toxic to cells in culture. When the small fragments were removed, the nanotubes did not inhibit the proliferation of cells in vitro.
- The moral of the story is that clean conclusions cannot be reached with dirty samples, a common problem in the field of nanotoxicity.