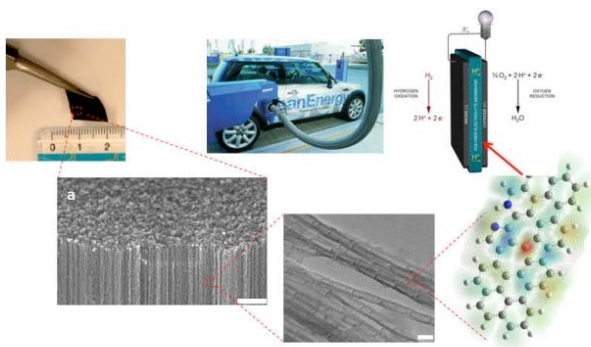




Professor Zhenhai Xia

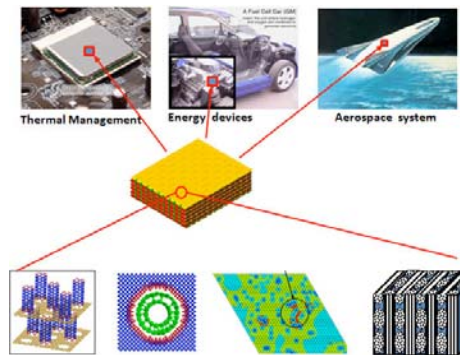
Department of Materials Science and Engineering

Materials for clean energy (fuel cells); Bio-inspired and bio-mimetic materials; Ceramic, metal, and polymer matrix micro-/nano-composites; Multifunctional materials for sensing and damage detection; Multiscale/multi-physics modeling and simulation
 Research Group: Federal and State Funding; 5 Ph.D. Students, 2 visiting scholars



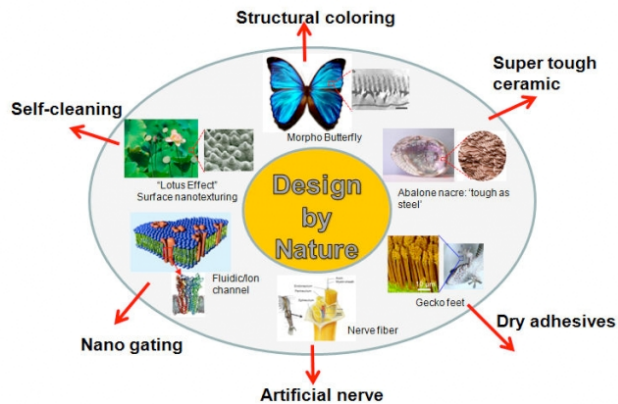
Nanomaterials for clean energy

- innovative electrodes,
- renewable energy conversion
- and storage (fuel cell, metal-air batteries, supercapacitors and solar cells)



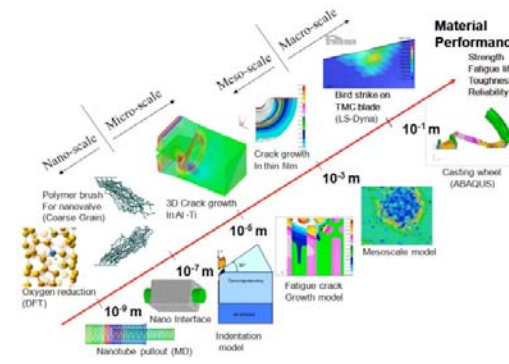
Nanocomposites and structures

- Mechanics
- Sensors
- Sensing
- Damage detection.



Biomimetic materials system (gecko and muscle)

- Strengthening and toughening
- Self-cleaning
- Nanocomposite for sensors



Multiscale Modeling

- Quantum mechanics,
- Molecular dynamics, Monte Carlo, Mesoscale modeling
- Finite element analysis

