

Old Dominion University

Center for Computational Science and Departments of Mathematics and Statistics, and Computer Science

Faculty: Alex Pothen, Li-Shi Luo, Ruhai Zhou

Our faculty members are experts on mathematical theory, numerical methods, and ultra-scale computations necessary for nanoscience and technology.

1) Microflows

-theory, modeling and simulations of microfluidics involving gaseous or liquid flows, or complex fluids such as biological fluids (e.g., blood), particulate and colloidal suspensions, and self-assembly systems.

2) Composite materials

-theory, modeling and simulations of nematic polymers, which are very important for nano-composites for high-performance materials in material science.

3) High performance computational modeling

-computational solution of a range of numerical problems (eigencomputations, differential equations, finite elements, inverse problems, multiscale problems, etc. arising in molecular modeling) on massively parallel computers (thousands of processors, trillions of operations per second).

Dept of Biological Sciences Nanobiology

Faculty: Chris Osgood and Jim Swanson

- Analysis of the cytotoxic properties of nano materials
- Exploitation of nanoparticles as probes for cellular level studies
- Analysis of dynamics of nanoparticle entry and exit through biological membranes

Dept of Electrical & Computer Engineering

Sacharia Albin

- Synthesis of MWCNTs using microwave plasma CVD and thermal CVD
- Synthesis of nanorods of W and Mo, and their oxides
- Characterization of nano materials using SEM, HRTEM, STM, EDX, Raman, etc
- Investigation of field emission properties of nano materials
- Research on chemical and biological sensors using nano material
- For more details, please visit:

http://www.ee.odu.edu/~albin/Nano_Science_and_Engineering/index.htm

Hani ElSayed-Ali

-Pulsed laser deposition (PLD) of nano materials

-Characterization of nano materials