

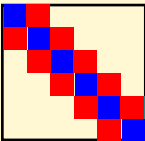
Staff: 2 professors
13 PhD students, post-docs and technical staff

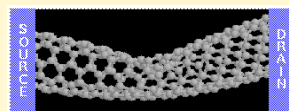
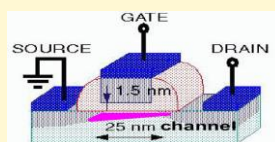
Research fields: Modeling and simulation of nanoscale device fabrication and nanodevice behavior

Research topics in Micro and Nano Systems

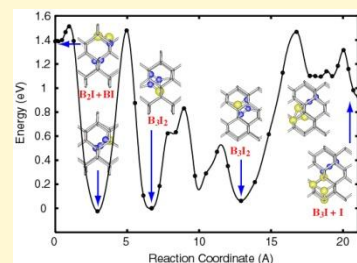
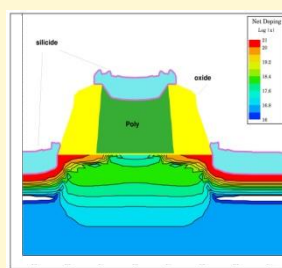
- Physics of nanofabrication
- Nanowires, nanotubes, nanotransistors
- Photodetectors and nanosensors
- Silicon and organic solar cells
- Charge transport in DNA and proteins
- Physics of nanostructure electromechanics
- Conduction of nanoscale metal wires
- Analysis and design of integrated optoelectronics



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Computational modeling of nanostructures



Modeling of nanofabrication processes

Technology/Methods

- Density functional theory
- Non-equilibrium Green's functions
- Continuum finite element models
- Molecular dynamics
- Kinetic lattice Monte Carlo
- Monte Carlo transport
- Quantum mechanical and semiclassical calculations of material properties

Design, simulation & characterization tools

- Synopsys TCAD: Sentaurus Process/Device, etc.
- NASA 2D Quantum Simulator
- DFT: VASP, Gaussian, CASTEP
- LaMoCa KLMC simulator
- MD: LAMMPS
- 3D Nanotransistor/Nanowire simulator
- Carbon nanotube/graphene simulator
- Spreading resistance measurement system
- Hall effect system



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