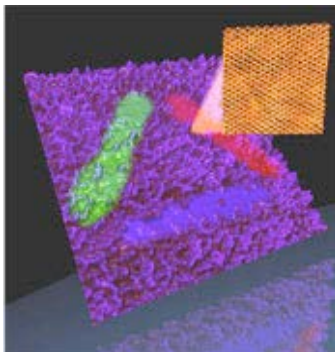


Group Members

Anand Bhattacharya, anand@anl.gov,
 - oxide MBE
 Seth Darling, darling@anl.gov
 - solar energy, organic PV, AFM, QEMS
 Brandon Fisher, fisher@anl.gov,
 - magnetometry, STM/SEM, XRD
 Jeffrey Guest, jrguest@anl.gov
 - STM, AFM, ultrafast microscopy
 Nathan Guisinger, nguisinger@anl.gov
 - STM, AFM, graphene
Saw Wai Hla (Group Leader), shla@anl.gov
 - LT-STM, SP-STM, AFM
 Xiao-Min Lin, xmlin@anl.gov
 - synthesis of nanocrystal building blocks
 Dan Rosenmann, rosenmann@anl.gov
 - Kurt Lesker evaporation, deposition, sputtering, oxide MBE

Electronic & Magnetic Materials & Devices



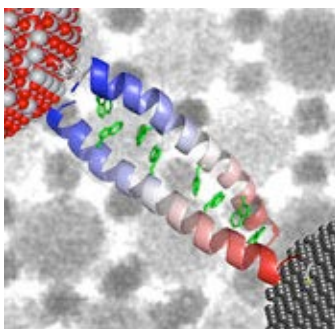
Major Tools

- UHV SPM (AFM/STM) (Omicron Nanotechnology)
- 4-probe STM/SEM (Omicron UHV Nanoprobe)
- VT-AFM (Omicron XA)
- Scanning probe microscope (Veeco Multimode)
- Complex Oxide MBE (DCA R450D Custom)
- Electron beam evaporator and sputtering deposition
- Magnetometry (QD PPMS & MPMS)
- Rheometer
- Solar simulator, QEMS (Oriel)
- TGA/Luminescence/UV-vis-NIR
- X-ray diffractometer (Bruker D8 Discover)

Group Members

Chris Fry, hfry@anl.gov
 - synthesis, peptide synthesis, HPLC, CD
 Yuzi Liu, yuziliu@anl.gov
 - analytical TEM
Tijana Rajh (Group Leader), rajh@anl.gov
 - EPR, quantum dots, semiconductor-bio composites, LSCM
 Elena Rozhkova, rozhkova@anl.gov
 - bio(in)organic, biological chemistry, synthetic biology, GC/MS
 Elena Shevchenko, eshevchenko@anl.gov
 - 2-D and 3-D nanoparticle assembly, SEM

NanoBio Interfaces



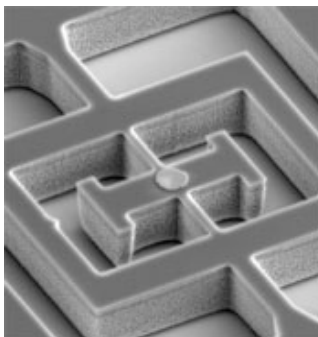
Major Tools

- Field-emission TEM (JEOL 2100F)
- Field-emission SEM (JEOL JSM7500F)
- Electron paramagnetic resonance
- Circular dichroism spectrometry
- Functionalization, electro/photochemical
- HPLC, GCMS
- Laser Scanning Confocal Microscope (Zeiss LSM)
- Post-self-assembly processing
- Schlenk Lines
- Solvent Purification
- Peptide synthesizer
- Synthesis & surface modification of nanoparticles
- ZetaSizer Nano, Malvern

Group Members

David Czaplowski, dczaplowski@anl.gov
 - MEMS/NEMS technology
 Ralu Divan, divan@anl.gov
 - lithography, nanogels, MEMS/NEMS
Daniel Lopez (Group Leader), dlopez@anl.gov
 - MEMS/NEMS technology
 C. Suzanne Miller, csmillier@anl.gov
 - dicing saw, ALD, Karl Suss aligner
 Leo Ocola, ocola@anl.gov
 - nanofabrication, electron beam lithography
 Liliana Stan, lstan@anl.gov
 - PVD, sputtering, IBAD, evaporation
 Anirudha Sumant, sumant@anl.gov
 - diamond-based NEMS, ALD, CNT, graphene
Il Woong Jung, ijung@anl.gov
 - focused ion beam lithography

Nanofabrication & Devices



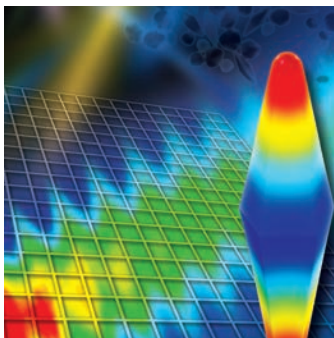
Major Tools

- JEOL 9300 FS, 100 kV Electron Beam Lithography
- Raith 150, 30 KV Electron Beam Lithography
- FEI Nova 600 NanoLab DualBeam FIB/SEM
- Karl Suss MA6 Optical mass aligner
- Nanonex NX-3000 Step and Repeat Nanoimprint
- Direct write optical lithography
- Interferometric lithography
- Resist processing
- Plasma processing (chlorine, fluorine chambers barrel asher system)
- Wet chemistry & metrology
- SPM, PSIA XE-HDD
- Deposition (ebeam evaporator and sputtering, ALD, MOCVD)
- CNT, graphene, nanocrystalline diamond synthesis

Group Members

David Gosztola, gosztola@anl.gov
 - laser spectroscopy and electrochemistry,
 Raman, near-IR, NSOM
 Matthew Pelton, pelton@anl.gov
 - phenomena of light w/ nanomaterials
 Richard Schaller, schaller@anl.gov
 - transient absorption/emission spectroscopy
 Yugang Sun, ygsun@anl.gov
 - synthesis/fab of functional nanomaterials
 - optical, electronic, mechanical properties
 Stefan Vajda, vajda@anl.gov
 - size selected cluster facility
Gary Wiederrecht (Group Leader),
wiederrecht@anl.gov
 - microscopy of spatial resolution below
 diffraction limit, NSOM, UTAS

Nanophotonics



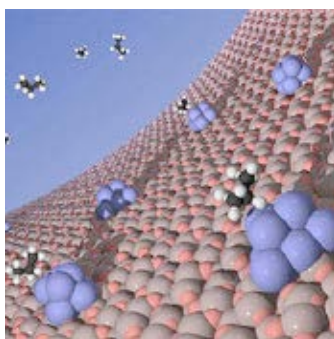
Major Tools

- NSOM
 - CW laser excitation
 - ultrafast laser excitation
- Colloidal synthesis
- Confocal Raman microscope, Renishaw
- Size-selected cluster facility
- Time-correlated single photon counting
- Ultrafast transient absorption spectroscopy
- Ultrafast microscope
- VIS/NIR microscopy

Group Members

Larry Curtiss, curtiss@anl.gov
 - quantum chemical studies
Stephen Gray (Group Leader), gray@anl.gov
 - nanophotonics, electrodynamic
 simulations
 Jeff Greeley, jgreeley@anl.gov
 - nanocatalysis
 Michael Sternberg, sternberg@anl.gov
 - software development
 Subramanian Sankaranarayanan,
ssankaranarayanan@anl.gov
 - nanoscale oxide energy materials

Theory & Modeling



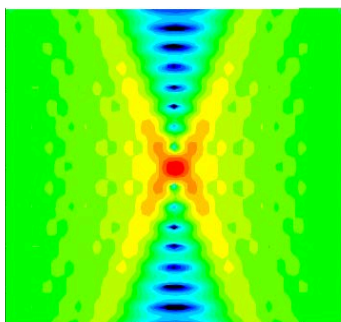
Major Tools

- Nanoscience Computational Facility
 25 TFlop cluster for:
 - Density-functional-based tight-binding (DFTB) electronic structure package
 - Time-domain nanophotonics simulation
 - MPI-based parallel versions of nanophotonics and tight-binding codes
 - GPAW; real space, grid-based DFT-PAW
- Access to Argonne computer facilities
- Support for experimental projects
- Support for theoretical projects

Group Members

Martin Holt, mvholt@anl.gov
 - x-ray diffraction and fluorescence
 Jorg Maser, maser@anl.gov
 - x-ray microscopy, x-ray optics
Ian McNulty (Group Leader), mcnulty@anl.gov
 - diffraction, holography, x-ray microscopy,
 optics
 Volker Rose, vrose@anl.gov
 - synchrotron x-ray scanning tunneling
 microscopy
 Robert Winarski, winarski@anl.gov
 - x-ray imaging and tomography

X-ray Microscopy



Major Tools

- Hard X-ray nanoprobe beamline, sector 26 of APS
- Scanning probe X-ray diffraction microscopy
- Scanning probe X-ray fluorescence microscopy
- Full-field two-dimensional transmission imaging and tomography
- Heating/cooling specimen stage
- 30 – 50 nm resolution, 8 - 12 keV