

**LANL Nano-Capability Areas**

## **Examples of Nanoscale Science & Technology at Los Alamos National Laboratory**

Nano-Materials/ Nano-Chemistry	Nanospunge (Nanoporous Polymers) & Nano Engineering (1 nm) Cu/Cr Nanolayer Composites (2-10 nm) Colloidal Quantum Dots (1-10 nm) Nanopore Zeolites (10 nm) Metastable Intermolecular Composite Particles (25 nm) Bulk Nanocrystalline Metals and Alloys (20-500 nm)			
Nano-Bioscience	Structural Biomolecular Assemblies doing Chemical Work (1-100 nm) Self-Assembled Monolayers for Corrosion Bioremediation Probes (2.5-10 nm) Polymer Modified Lipid Membranes (3 nm) Membrane Minmetic Architectures (5 nm) Biological Energy Transduction and Scaling (10-100 nm)			
Nano-Theory/Modeling	Electronic Structure (1 nm) Deformation Physics of Ultra Grain Materials (5 nm) Electron Transport (10-1000 nm) Quantum Computation (10-100 nm)			
Tools/Facilities for Nano-Characterization	Ultrafast Scanning Tunneling Microscopy (0.2-10 nm) National High Magnetic Field Laboratory (5 nm) LANL Neutron Science Center (1-5 nm)		Single Molecule Fluorescence Spectroscopy (300 nm)	
Nano-Devices/Sensors		Organics/Inorganic Semiconductor Heterostructures (50 nm) Scalable Silicon-based Quantum Computer (20 nm) Polymeric Luminescent Sensors (90 nm) Nanocrystalline Layered Thin Film Capacitor (30 nm)		
Nano-Synthesis/ Fabrication	Hyperthermal Neutral Beam Fabrication (1 nm) Fabrication of Ferroelectric Electro-Optic Lens (100 nm) Ion Beam Micromill (10-100 nm) Plasma Source Ion Implantation (40 nm)			
0.1 nm	1 nm	10 nm	100 nm	1000 nm
<b>Characteristic Dimension (nanometers)</b>				