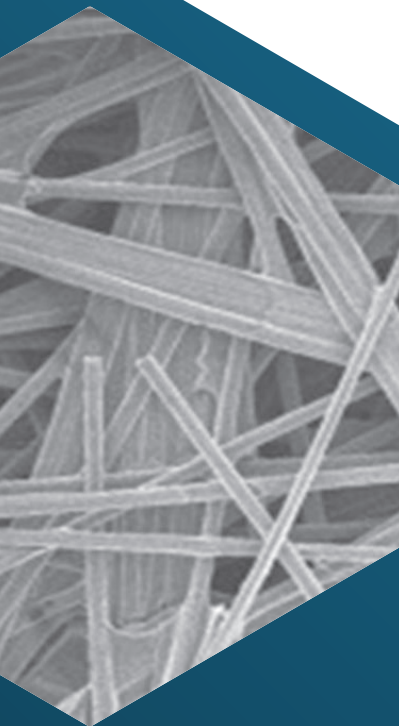
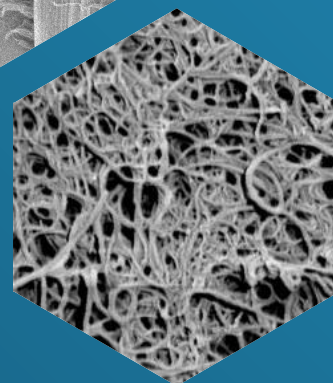
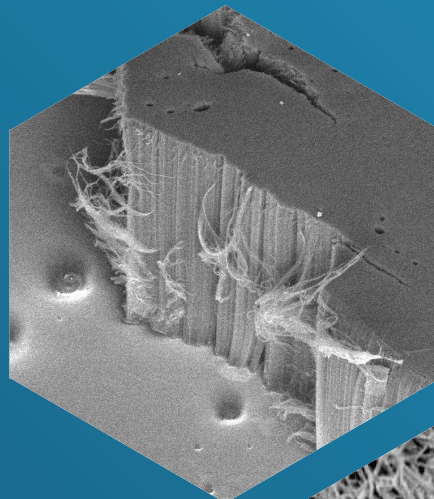




Leadership Statement

NanoLab provides product development and engineering services for nanotechnology-enabled sensors, devices, coatings, & composites for defense, medical, industrial & consumer markets. Our creative process can begin with as little as a new idea needing basic research. Our scientists use their expertise in material synthesis, chemistry and physics to create devices, sensors, composites and coatings that are enabled through the use of nanotechnology. From innovation to a saleable product, NanoLab's engineers will guide the way, creating new intellectual property, manufacturing prototypes, conducting proof of principle demonstrations and qualification trials, and helping our customers to market.



Mission

To provide best-in-class product development services for nanotechnology-enabled sensors, devices, coatings, & composites for defense, medical, industrial & consumer markets

Approach

NanoLab's core business is to create products based upon nanoscale devices and nano-materials. We develop products and technologies that are enabled through nanotechnology to achieve new functionalities, superior performance, with cost effective, scalable processes.

Core Competencies

Since our founding in 2000, NanoLab has grown from a niche manufacturer of nanomaterials to become a vertically integrated research, development and production house with expertise in:

- » Formulating nanocomposites to express unique properties
- » Characterization of a broad array of physical, electrical and chemical properties.
- » Sensors & Devices employing nanomaterials, chemical interactions and plasmonics
- » Carbon nanotube (CNT) enhanced thermoplastics & thermosets (urethanes, polyimides, epoxies, etc.)
- » Inks, paints and coatings with inherent conductivity
- » Electronics design for sensor and device integration
- » Lab and Process Automation for scaleup.

Scope of Services

NanoLab provides concept to final product development services for nanotechnology or materials-enabled sensors, devices, coatings, & composites for defense, medical, industrial & consumer markets. New products often need new processes to go with it. Our team:

- » Defines products & processes for manufacture
- » Implements process and quality controls
- » Assists in patenting & commercialization
- » Identifies partners for manufacturing

Staff Profile

NanoLab employs a multidisciplinary technical staff including: material scientists, chemists, electronic engineers, mechanical engineers, chemical engineers, and designers. Forty percent of our workforce holds advanced degrees in their field. All of the scientists and engineers at NanoLab are expert in creating with nanotechnology, but each one brings additional expertise in a specific engineering discipline, so we can apply our combined talents in chemical, electrical, & mechanical engineering to your problem. Together, we define success criteria, identify the key metrics to gauge success, and map out the technical approach to meet your timeline and budget.

Markets/Customers

NanoLab services clients globally, for commercial and U.S. Federal Government customers. These clients span a broad range of application areas, including medical, electronics, aerospace, automotive, and consumer markets. A brief list of some of our clients includes:

Government

DARPA
US Army
US Navy
NASA

Aerospace

Raytheon
Lockheed Martin
United Technologies
New Hampshire Ball Bearings

Electronics

Intel
Samsung
Motorola
Sandisk

Medical

BioRad
Perkin Elmer
Lydall
Boston Scientific

Consumer

Unilever
Adidas
Gillette
Boston Engineering

Representative projects for R&D services

Composites & Coatings

- » Corrosion resistant coatings & primers (Navy)
- » CNT-reinforced epoxy composites (Schlumberger)
- » Ultra-low reflectance optical black coatings (NASA)
- » Toughened B4C armor nanocomposites (Army, Raytheon)

Medical & Consumer

- » Wearable elastomeric strain sensors (Adidas)
- » Sensors to interrogate exhaled gases (Private)
- » Endotracheal tube sensors (Miach)
- » Nanoparticle based transfection tools (BioRad)
- » Resistively heated clothing (Private)
- » Lithium-Air battery cathodes (DOE, MaxPower)

Industrial

- » Nanoscale tweezers/grasping tools (Internal)
- » Nanoscale Oscillators and RFID tags (Private)
- » Filtration media for virus removal (Lydall)
- » Catalytic nanoparticle coatings (DOE)
- » Wear indicating sensors for bearings (Navy, NHBB, RBC)
- » LabVIEW controlled system automation and DAQ (AMU)

Facilities

NanoLab has one of the best equipped nanoscience laboratories in private hands. The laboratory has equipment that enable the synthesis, dispersion, formulation and characterization of a broad array of materials, with unique physical, electrical and chemical properties.

Nanomaterial synthesis

- » Air-free chemical synthesis
- » Hydrothermal synthesis
- » Full wet chemical lab
- » CVD reactors
- » In-house CNT production & functionalization
- » Plasma & ozone etching
- » Access to:
 - › E-beam lithography
 - › Full clean room
 - › Metrology & SEM Lab

Product Design Tools

- » Eagle™ (circuit board design)
- » Solidworks™ (3D drafting)
- » LabVIEW™ (DAQ & process automation)
- » 3D printing and prototypingw

Plastics, elastomer & epoxy composite tools

- » Lab-scale extrusion line
- » Two and three roll milling
- » Centrifugal mixing
- » Resin transfer molding & ovens

Inks & Paste Formulation Tools

- » Ultrasonic dispersion equipment
- » Screen & inkjet printers, and drop-on-demand printing

Characterization

- » Optical
 - › FTIR
 - › UV-VIS-NIR
 - › Raman

Thermo-physical

- › TGA
- › DSC
- › DTA

» Mechanical

- › Tensile
- › Impact
- › Adhesion

» Electrical

- › Resistance
- › Impedance
- › Capacitance
- › Inductance

