



Cost-effective Access to Revolutionary Opportunities



Furthering the Commercial
Introduction of Nanotechnology Products

The Case for Converting Nanotechnology to Nanobusiness

Nanotechnology development is pervasive. Defined as the art of manipulating materials on an atomic or molecular scale, the opportunities for profiting from the nanotechnology revolution abound. The National Science Foundation predicts that innovations in nanotechnology will create a \$1 trillion business within 10 - 15 years. Nanotechnology is expected to improve medical treatments, communications, electronics, defense systems and much more. Clearly, the potential rewards associated with delivering viable nanotechnology products warrant attention. But successful conversion of nanotechnology to profitable nanobusiness has always been restricted by the significant investment required to develop state-of-the-art microfabrication facilities and the availability of nanotechnology expertise.

Until now.

The New Jersey Nanotechnology Consortium - Changing the Business of Nanotechnology

The New Jersey Nanotechnology Consortium (NJNC) is the premier member-owned and managed organization focused on furthering the commercial application of nanotechnology. With corporate, academic and government participation, the NJNC develops cost-effective devices based on nanotechnology for a variety of markets including pharmaceutical, biomedical, materials, optical/photonics, defense/aerospace, industrial and semiconductor.

NJNC members receive access to world-class nanotechnology research, development and prototyping services, with low volume fabrication capabilities essential to the large-scale conversion of nanotechnology concepts to successful commercial products.

Based at the former Bell Labs nanofabrication facility in Murray Hill, New Jersey, the NJNC is uniquely positioned to support the needs of organizations seeking to promote the development of nanotechnology

applications and products. In the fast-paced world of emerging technologies, bringing the right product to market before the competition can make or break your quarter, your year, or in some cases your company. New companies can prove the commercial viability of their concepts in a fraction of the time, encouraging venture financing unavailable under traditional approaches. Research projects once thought to be prohibitively expensive can now be realistically undertaken. Access to this capability can shave years off of your product development time and eliminate millions of dollars of investment.

The Consortium also supports development of the entire nanotechnology industry by educating the next generation of scientists, spearheading pre-competitive research and driving the nanotechnology roadmap. In short, creating the infrastructure necessary for a thriving nanotechnology industry.

The NJNC's most significant expertise, and perhaps the most value-added in the long-term, is the ability to develop manufacturable processes for volume fabrication of nanotechnology devices. The Consortium's Nanofabrication Lab is fully staffed and equipped to assist with all aspects of confidential product and device development - with years of



NJNC's 16,400 sq ft, class 100/10 clean room

experience transitioning products from research to volume manufacturing for commercial applications. Members can take immediate advantage of real time access to nanotechnology experts, world class facilities and the NJNC's extensive process knowledge to get products to market more quickly and cost effectively.

Consortium Services and Capabilities

With device processing, design and proven concept to commercialization capabilities, the NJNC's technical team can provide members with customized support on a wide range of projects and activities. Some examples of the types of services and capabilities available through the Consortium include:

NJNC Services

- Industry projects
 - Design, Fabrication, Testing (see sidebar)
- Government Research
 - Discovery of new devices and processes
 - Research, development, assessment
- Educational Services
 - Short courses
 - Publications
- IP Licensing
- Business Incubator

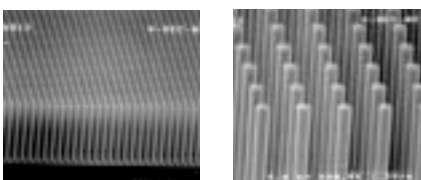
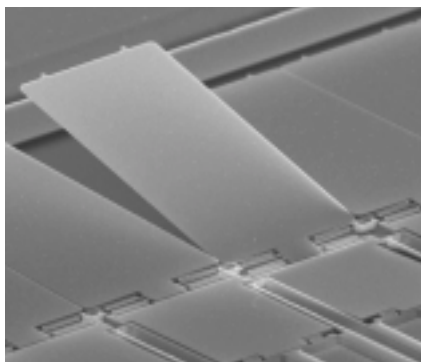
NJNC Capabilities

End-to-End Device Fabrication

- MEMS (Micro Electro-Mechanical Systems)-nanopositioning systems, sensors, accelerometers and actuators, optical and RF devices
- Optical devices (active and passive)- waveguides, lens arrays, gratings, optical interconnects, equalizers, switches
- Nanofluidics, molecular probes, DNA fractionation, cell sorters

Device Prototyping

- Design, testing and optimization
- Process development and integration
- Industry collaboration
- Technology transfer



Nanotechnology devices fabricated at NJNC

Special Services

- Electronic and Photonic Materials Development
- 193nm lithography
- E-beam lithography
- Etch services
- Cost effective Multi-User MEMS process with sub-micron features
- MOS process modules

World Class Facilities Ready to Serve You

The NJNC offers members a wide range of specialized equipment for design, prototyping, fabrication and testing. The NJNC Nanofabrication Lab in Murray Hill, NJ, is the only sub-micron, 200mm wafer fabrication facility dedicated to nanotechnology development in the United States. Other key NJNC assets include:

- Fully operational, end-to-end fabrication facility with a 25-year history and state-of-the-art equipment valued at over \$400 million
- 16,400 sq ft of class 100/10 clean room, including a 3,600 sq ft class 100 electron-beam facility
- One of the world's few e-beam lithography tools dedicated to nanotechnology
- Portfolio of nanotechnology devices fabricated using NJNC processes

Design, Fabrication and Testing Services

Low Volume Fabrication

The NJNC offers low volume fabrication runs for mature processes that contain NJNC standard process steps. Your NJNC technical representative will be able to determine if your process fits into this category.

Prototyping

The NJNC is experienced in producing device prototypes in both MOS and MEMS technology. Your NJNC technical representative will work with you to develop a process flow that provides prototyping capability.

Process Development

The NJNC is experienced in process development for both MOS and MEMS technology. Your NJNC technical representative will work with you to determine if your intended process flow matches our capability.

Substrate Preparation

The NJNC has an extensive library of metal and dielectric film deposition materials and processes for 200mm substrates and a substantial library for smaller substrates. Our technical contact will be glad to work with you to satisfy your substrate preparation needs.

Specialized Services

The NJNC has an extensive capability and experience in high resolution lithography, metrology, deposition and dry etch. Our technical contact will be glad to work with you to satisfy your special services needs.

The Value of Membership

The NJNC is uniquely positioned to support cost effective nanotechnology innovation. NJNC members participate in corporate governance and determine the direction of the Consortium. Governing members actually share in ownership. Members receive priority access to facilities, discounts on projects, assign staff to the Consortium, and share in the Consortium's common intellectual property. Members may also choose to work on proprietary projects where they own the confidential design and IP rights.

The Consortium's diverse membership, outstanding resources, and focused approach to nanobusiness make it a fertile collaborative ground for nanotechnology scientists and engineers as well as companies working to create commercial nanotechnology products.

The NJNC has a range of membership options to suit the needs of prospective members. We look forward to working with you to find a membership arrangement that meets your specific needs for nanotechnology support. For more detailed information on memberships visit www.njnano.org/membership.

Go From Concept to Commercialization - Fast!

Jump-start your efforts to deliver on the promise of nanotechnology today. The NJNC is actively engaged with members to develop and commercialize nanotechnology projects. Let us help you bring your products and devices to market years in advance of traditional in-house methods, with lower total investment and less risk.

Join the premier, member-owned and managed organization dedicated to making nanobusiness a reality. Connect with other industry, academic and government members taking nanotechnology "From Concept to Commercialization".



*The NJNC is located in Murray Hill, NJ at the headquarters of the world-renowned Bell Labs
On the cover: NJNC's 3,600 sq ft class 100 E-beam nanolithography facility*

Key NJNC Membership Benefits

- Shorter time to market
- Reduced fabrication and manufacturing costs
- Collaborative research with member institutions
- Access to Consortium IP
- Participation in university/industry collaborations
- New business development opportunities



For more information about the New Jersey Nanotechnology Consortium please visit www.njnano.org or contact us at: +1 (877) NJNC-ORG (656-2674) This document is for planning purposes only.
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