

## A Nano Network that WORKS

Pennsylvania is building the foundation to attract and advance nanotechnology companies through workforce development and research being conducted and promoted in our renowned institutions of higher education.

- > Penn State University: Nanofabrication Laboratory & Center for Nanotechnology Education and Utilization
- > Lehigh University: Center for Advanced Materials and Nanotechnology & Lehigh Nanotech Network
- > Drexel University Nanotechnology Institute
- > University of Pennsylvania: Regional Nanotechnology Facility & Nano/Bio Interface Center
- > Carnegie Mellon University: Center for Integrated Nanotechnology Research
- > University of Pittsburgh: Swanson Micro and Nanotechnology Laboratory
- > Pennsylvania Nanofabrication Manufacturing Technology (NMT) Partnership
- > Lehigh Nanotech Network

Pennsylvania's strength is in its research base that spans all key markets for nanotechnology, and in its strong base of existing industry, which supports the latter stages of the product development process, particularly in relation to the Advanced Materials, Biosciences/Healthcare, Electronics, Energy and Coatings, Metals, and Plastics markets.

Please see the PIN web page for an extensive list of firms involved with nanotechnology:  
[www.newPA.com/nano](http://www.newPA.com/nano)

## PIN: Measurable Impact with Proven Value

Economic Impact: From 1999 to 2007, DCED and BFTDA spending was \$66.8 million on PIN. This produced a total economic impact of \$868.6 million for Pennsylvania.

Return on Taxpayer Dollars: Every dollar invested by the commonwealth for the six PIN projects yielded \$13 in total PIN economic impact to Pennsylvania.

As the commonwealth continues to advance nanotechnology by partnering with institutions of higher education and industry, PIN will be a key component for sustainable economic development.

### For more information, contact:

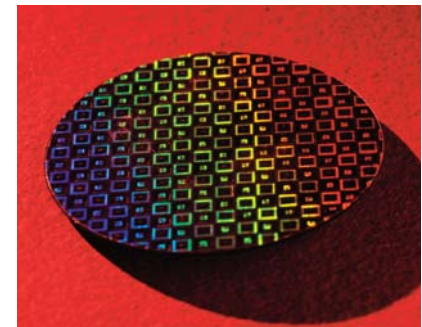
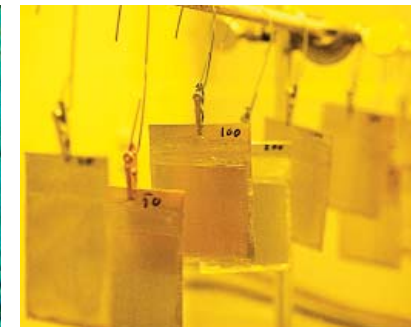
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# ▶ Pennsylvania Initiative for Nanotechnology

The Pennsylvania Initiative for Nanotechnology (PIN) is a statewide strategy that combines and focuses the efforts of the Pennsylvania Department of Community and Economic Development (DCED), institutions of higher education, regional economic development organizations and more than 125 companies throughout the commonwealth.



> ready > set > innovate



## A Driver for “Nanovation”

For enhanced collaboration, PIN is leveraging Pennsylvania's clusters of research, industry, and workforce assets to make Pennsylvania a global leader in nanotechnology research, commercialization and economic development activities.

PIN's primary strategy is focused on:

- > Developing consortia-driven, educational and workforce development programs
- > Increasing commercialization of nanotechnology applications and processes through collaboration
- > Increasing technology transfer and enhancing university-based resources and skills

Since 1998, the Ben Franklin Technology Development Authority (BFTDA) and other DCED programs have funded the following PIN initiatives which have achieved national recognition for innovation and educational contribution:

- > **Lehigh University's Pennsylvania Materials Research Science and Engineering Center**  
Lehigh University, in partnership with Carnegie Mellon University, is developing innovative and advanced materials and applications through research, with emphasis on nanoscale characteristics and behavior, which offer commercially relevant advances.
- > **Lehigh University's Nanophotonics Technologies**  
Lehigh University's Nanophotonics Technologies initiative continues to develop commercialization pathways for nanophotonics-specific projects. Working with regional nanotechnology entrepreneurs and enterprises, the program leverages federal research funding, enhances regional nanotechnology expertise and recognition, improves student enrollment and enhances interactions with other Pennsylvania institutions of higher education.
- > **Nanotechnology Institute (NTI)**  
The NTI is a partnership among the University of Pennsylvania, Drexel University and the Ben Franklin Technology Partners of Southeast Pennsylvania, as well as 12 affiliate higher education or academic medical institutions. The initiative contributes to the regional and state economy by developing an infrastructure to pave the way for the commercialization of nanotechnology inventions.
- > **Penn State Advanced Materials and Nanotechnology Research and Commercialization Program**  
The Advanced Materials and Nanotechnology Research and Commercialization Program supports a range of activities including federal National Science Foundation nanotechnology research grants, matching funds for acquisition of instrumentation, expansion of nanofabrication user facilities, and research seed grants to promote discovery and to accelerate commercialization.

### > Pennsylvania Nanofabrication Manufacturing Technology (NMT) Partnership

The Pennsylvania NMT Partnership is recognized as a national model for undergraduate nanotechnology education and workforce development. In addition to enabling fifty-six 2-year and 4-year degree programs at 29 PA higher education institutions across the commonwealth, the NMT Partnership works to further science, technology, engineering, and math (STEM) education by exposing the commonwealth's primary secondary, and post-secondary educators to the new possibilities and opportunities of nano-science and technology.

### > Pennsylvania NanoMaterials Commercialization Center

The Center, founded in 2006, is a partnership with industry founding partners: Alcoa, Bayer Material Science, PPG Industries, and United States Steel; and university partners, Carnegie Mellon University, University of Pittsburgh, Pennsylvania State University, and Lehigh University to promote and commercialize nanotechnology research and development to increase economic impact for Pennsylvania.

## Pennsylvania's PIN Partners

Pins represent a sampling of participants in the Pennsylvania Initiative for Nanotechnology

