



Industry Day Showcase 3/31/09



The NSF Nanoscale Science and Engineering Center for High-rate Nanomanufacturing (CHN) is hosting an Industry Day Showcase on **March 31, 2009**. The event will showcase the research of the Center, including Northeastern University, the University of New Hampshire, and the University of Massachusetts Lowell.

At the event, Director Ahmed Busnaina will give an overview presentation on the work of the Center, and graduate students will present posters on their research. The reception will provide opportunities for networking and interaction with the faculty, post doctoral research associates, and graduate students working on CHN projects.

Invitees are encouraged to bring colleagues who may also be interested in the work of the CHN, which is described in the following pages.

CHN Industry Day Showcase
March 31, 2009 from 3:00 to 6:00 pm
Ballroom, Curry Student Center
Northeastern University, Boston



NSF Nanoscale Science and Engineering Center for High-rate Nanomanufacturing
RSVP to Kristen Eaton at 617-373-6012 – keaton@coe.neu.edu
www.nano.neu.edu



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Partial List of Posters to be Presented

- Nanoscale Molding of Bulk Metallic Glass
- Models for Optimization of Nanomanufacturing Process Quality and Yield
- Integration of Single-Walled Carbon Nanotubes on to CMOS Circuitry for Sensing Applications
- Hydrogenated Carbon Nano-onions and Graphite
- Trade-offs in Environmental and Economic Assessment of Carbon Nanotube Products
- Electric Field Assisted Large Scale Assembly of Single Walled Carbon Nanotubes
- Size-Selective Directed Assembly of Nanoparticle Arrays for Multifunctional Biosensing Application
- Diameter Selective Growth of VA-SWNTs by Ethanol Flow Rate
- Nano-Element Testing Using a MEMS Test Bed
- Carbon Nanotube Switch for Non-Volatile Memory Devices
- Directed Assembly of High-Density Single-Walled Carbon Nanotube Patterns on Flexible Polymer Substrates
- Directed Assembly of SWNT
- Assessing Industrial Hygiene Practices Under Uncertain Health Risks and Regulations
- Large Scale Fabrication of Carbon Nanotube based on Flexible Devices by Parylene Shadow Mask Technology
- Tracking Carbon Nanotubes Through the Life Cycle of a Computer
- Convective Assembly of Nanoparticles using Hydrophobic/Hydrophilic Templates
- Large Area Nanoparticle Transfer Using Hybrid Stamps
- Scalability and Control of Electrophoretic Directed Assembly of Nanoparticles
- Wafer Scale Transfer Printing for the Flexible Plastic Electronics



Center Mission & Vision

Fueled by the dramatic increase in worldwide investments over the past few years, nanoscience research is rapidly creating scientific breakthroughs. To ensure that discoveries lead to commercially viable products in a time span faster than the traditional linear 20-30 year window, it is essential to develop nanomanufacturing technology in parallel with the ongoing nanoscience research.

The NSF Nanoscale Science and Engineering Center for High-rate Nanomanufacturing (CHN) develops processes and tools to bridge the gap between nanoscale science research and products, and enable society to reap the benefits of nanotechnology. In addition to developing novel nanomanufacturing technologies, CHN is also delivering the much-needed education in nanomanufacturing, including its environmental, economic, and societal implications, to the current and emerging workforce through partnerships among industry, universities, and K-12 teachers and students.

Membership in the CHN enables companies with a vested interest in nanomanufacturing to support the cutting edge research being conducted by the tri-University CHN through a tax-deductible corporate donation. As industrial members of the Center, companies gain access to the nanomanufacturing facilities at all three universities, sponsor graduate student work, and have options for exclusive or non-exclusive licensing of the intellectual property.



About the CHN



In the fall of 2004, the National Science Foundation awarded Northeastern University, the University of Massachusetts Lowell, the University of New Hampshire, and its partners Michigan State University and the Museum of Science, a Nanoscale Science and Engineering Center for High-Rate Nanomanufacturing with funding of \$12.4 million over five years (renewable for another five years).

The Center for High-rate Nanomanufacturing is focused on developing tools and processes that will enable high-rate/high-volume bottom-up, precise, parallel assembly of nanoelements (such as carbon nanotubes, nanoparticles, etc.) and polymer nanostructures. The Center nanotemplates are utilized to conduct fast massive directed assembly of nanoscale elements by controlling the forces required to assemble, detach, and transfer nanoelements at high rates and over large areas. The developed nanotemplates and tools will accelerate the creation of highly anticipated commercial products and will enable the creation of an entirely new generation of applications.

CHN is supported by the National Science Foundation Award #NSF-0425826.

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