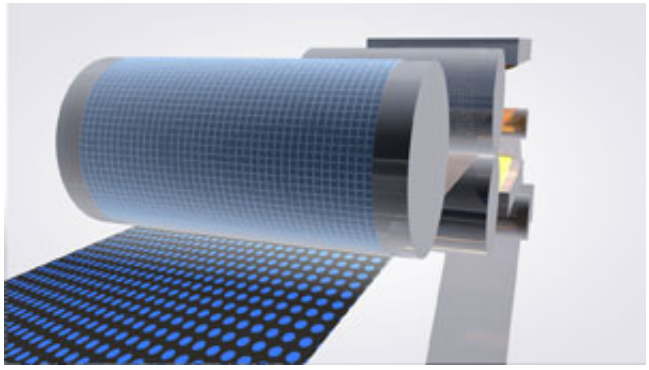
National Nanomanufacturing Network Newsletter

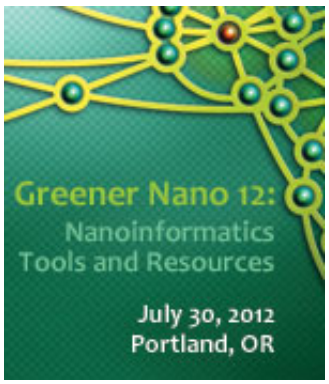
Volume 5 Issue 6 - June 2012

Accelerating Progress for Advanced Manufacturing: Enabling Technologies, Barriers, Infrastructure, and Partnership Models for Roll-to-Roll Nanofabrication



Flexible and printed electronics technologies have advanced to the stage where inexpensively printing high performance devices on continuous rolls of polymer-based substrates now promises to revolutionize advanced manufacturing. The recently published report from the NIST-NNN Workshop on Nanofabrication Technologies for Roll-to-Roll Processing, an Academic-Industry Workshop on Technologies for American Manufacturing Competitiveness, identifies and discusses progress and challenges for successful merging of nanofabrication technologies into advanced device manufacturing. The workshop further included discussions of general parameters for a multi-year technology roadmap to guide and accelerate progress in roll-to-roll (R2R) processing of nanoscale devices.

The R2R platform is an industrial vetted way to handle solution-based processes and coatings for high volume manufacturing. R2R processes are implemented for applications as diverse as instant photographic film, separation membranes, filtration media, advance printing and holographic coatings,



Job Opportunities

Assistant Professor - Inorganic Chemistry
Wellesley College

Research Associate - Nanotechnology
Emory University

Senior Applications Engineer
Bose

Postdoctoral and PhD fellowships in computer modelling of carbon nanomaterials
University of Minho

Upcoming Events

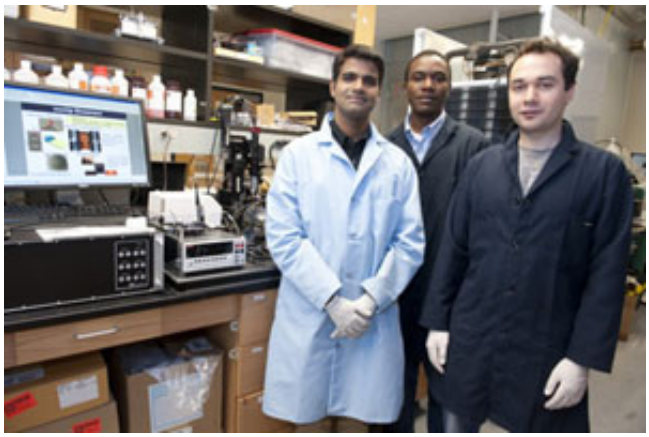
July 9-11, 2012

polymer anti-shatter films for car windshields, flexible solar panels, composite electrodes on metal foils for lithium-ion batteries, and macroscale patterning of metal interconnects for flexible packaging of electronic components. Currently, manufacturers are looking for new innovative continuous-feed processes for printing materials and structures onto roll-based flexible substrates. In particular, there is considerable interest in adapting R2R technologies for the extreme miniaturization of critical feature sizes to the nanoscale. This intersection of nanofabrication with R2R processes has considerable potential to spur innovation and economic growth.
More....

Regards,
Jeff Morse, Managing Director,
National Nanomanufacturing Network

Learn More about the National Nanomanufacturing Network

Chipping Away at Cancer



In the last two decades, the number of deaths from colorectal cancer has steadily declined, according to the American Cancer Society. While some of the decrease can be attributed to better treatment practices, early detection is another primary factor. Nonetheless, colorectal cancer is still the second leading cause of death among men and women in the U.S., and is expected to be responsible for more than 50,000 deaths in 2012.

"Each of us has witnessed cancer in our home," said pharmaceutical sciences graduate student Jaydev Upponi, who has helped design a new tech-nology to "give back, to contribute science that could help in the long run."

Upponi and his classmates, electrical and computer

Seeing at the Nanoscale 2012

July 15-17, 2012
Colloids & Nanomedicine 2012

July 15-20, 2012
2012 Gordon Research Conference on: Nanostructure Fabrication

July 30, 2012
Greener Nano 12: Nanoinformatics Tools and Resources Workshop

View Full Calendar

Upcoming Calls

2012 IEEE Workshop on Nanoinformatics for Biomedicine
Submissions accepted until:
July 30, 2012

Nanomanufacturing Summit 2012
Submissions accepted until:
August 5, 2012

View All Calls

engineering graduate student Asanterabi Malima and mechanical engineering graduate student Cihan Yilmaz, recently founded a company to develop a screening chip that uses nanoparticles to detect colorectal cancer earlier than currently possible.
More...

RTI International Launches Comprehensive Online Nanomaterial Registry

RTI International recently launched the Nanomaterial Registry, an authoritative, web-based resource that organizes and evaluates the biological and environmental implications of well-characterized nanomaterials from publically available resources.

Available at www.nanomaterialregistry.org, the registry allows users to search, browse, and compare data on the characteristics of a wide variety of nanomaterials.

Available free to the public, the registry is intended to serve as a comprehensive resource for the nanomaterial community, providing data that has been systematically curated based on minimal information standards built with broad community acceptance.
More....

Greener Nano 2012: Nanoinformatics Tools and Resources Workshop

Recently Published

From Our Affiliates

Gold Nanoparticles in Chemical and Biological Sensing
Chemical Reviews 112(5):2739-2779

Evaluation of environmental filtration control of engineered nanoparticles using the Harvard Versatile Engineered Nanomaterial Generation System (VENGES)
Journal of Nanoparticle Research 14(5)

Development and characterization of a capillary-flow microfluidic device for nucleic acid detection
Microsystem Technologies 18(6):731-737

Using Flow to Switch the Valency of Bacterial Capture on Engineered Surfaces Containing Immobilized Nanoparticles
Langmuir 28(20)

Determination of the Intracellular Stability of Gold Nanoparticle Monolayers Using Mass Spectrometry
Analytical Chemistry 84(10)

Two-Period Repetitive and Adaptive Control for Repeatable and Nonrepeatable Runout Compensation in Disk Drive Track Following

The Greener Nano 2012: Nanoinformatics Tools and Resources Workshop is fast approaching. The agenda is available, registration is free and open (until July 15), and a block of rooms is available at the Courtyard Portland City Center.

Workshop Goals: To establish a better understanding of current applications and clearly define immediate and projected informatics infrastructure needs for the nanotechnology community. We will use the theme of nanoEHS to provide real-world, concrete examples on how informatics can be utilized to advance our knowledge and guide nanoscience. Anticipated outcomes of the workshop will include: i) description of a community-based ideal data lifecycle, ii) nanomaterial description requirements for effective data modeling, and iii) a logical framework for integration of nanoinformatics tools and resources.
More....

Read more on InterNano

IEEE-ASME Transactions of Mechantronics 17(4)

Affiliated Centers

CHM
Center for Hierarchical Manufacturing
University of Massachusetts Amherst

Center for High-rate Nanomanufacturing

Center for Nanoscale Chemical-Electrical-Mechanical Manufacturing Systems

SINAM
CENTER FOR SCALABLE AND INTEGRATED NANOMANUFACTURING

Center for Integrated Nanotechnologies
CINT
Sandia
Los Alamos

nEL
innovation & productivity

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