

Microsystems Monthly

We are releasing the April edition of the Microsystems Monthly early in order that everyone will get a chance to sign up for several upcoming events.

April 1, 2010
Issue 13

Mid-Atlantic Micro-Nano-Alliance Mission Statement:

To network expertise, capabilities, and research to facilitate the development of new applications and commercialization of miniaturization technologies.

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editor

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Sign up by April 1st, 2010 for several no cost events (see pages 3 and 4)

These events are free if you register by the 1st of April .

1) On April 14th, 2010 **Current Trends in Electron Microscopy and Microanalysis** will be presented at Drexel University, Bossone Research Enterprise Center (see page 4 for registration details)

2) On April 19th a free **Symposium on Nanomaterials** will be held at the Kossiakoff Center JHUAPL in Laurel, Maryland. (See page 3 for details) In conjunction with this event there will be a drawing giving away and NANO IPOD (donated by the Mid Atlantic Micro-Nano Alliance) and we will be having an all member, albeit informal, meeting.

Feel free to join other members of the Mid Atlantic Micro-Nano Alliance at 5:00 p.m. following the symposium to discuss upcoming events!



This edition has a more complete list of upcoming events on page 5 and another no cost event relative to Managing Innovation on page 2.

Keith Rebello will replace Ann Darrin as Microsystems Monthly editor

In 2010, Mr. Keith Rebello will step in as editor of Microsystems Monthly .

Keith is a researcher in topics related to Advances Miniaturization at the Johns Hopkins University Applied Physics Laboratory and can be emailed at keith.rebello@jhuapl.edu. Ann will, of course, stay involve and can be reached at ann.darrin@jhuapl.edu.

Chairperson's Notes ——— **What's in it for me?** (or, "there is a free lunch")

It seems to me that some selfish thinking is in order every once in a while. The Mid-Atlantic Micro/Nano Alliance has succeeded over the past ten years due to the commitment of the motivated volunteers who got it going, shaped its strategy, and have brought the rest of us into the fold. Talking to these folks, it's clear that a large part of the motivation for their energy and involvement was the desire to give something back to the research community, and in particular to mentor and guide students and other young people coming into the field. Clearly we can't continue to thrive and grow without that mindset. At the same time, forming a strategy for the future is by definition a limiting process. Of the infinite possible directions and plans for the future that we can imagine, we have limited time and resources to execute these plans, and thus it becomes critical to focus on those few that will best serve us. And that obviously begs the question, "what will best serve us?" I have found that people generally have a hard time thinking in abstract terms about such things, and are far more successful at picturing what would be helpful & useful for their particular situation. So, it's in that spirit that I would like to challenge our membership to answer the question, "What's in it for me?"

To begin with, take a few minutes to think about the Special Topics Symposium. What subject would it be useful *for you* to hear about next year? What aspects of past symposia have been useful and which have not? We have had several people suggest recently that they would like to see a workshop on commercialization efforts (i.e. covering various aspects of successful product commercialization. This could be held either as a separate standalone workshop, or as a focus for the Fall Symposium. Would this be useful to you? Would it be useful to conduct a hands-on session on modeling for Micro/Nano, with vendor participation? What about more general strategy- what could we offer specifically to make it easier for you, for example, to identify and recruit job candidates? How could we make the web site useful, outside of the three day period preceding an event when you are looking for directions?

Here is my pledge to anyone reading this:

- If you email me with any idea, no matter how weird (the more selfish the better), I will take it seriously, figure out how many others out there would benefit from it, advocate for your idea with the rest of the steering committee, and do my best to put it into practice
- I will take anyone who contacts me with a new idea for a Symposium or event out for coffee to discuss it (maximum redeemable value \$4.79, non-transferrable, must release and hold harmless, no backs no gives)

lunch out, my treat, for anyone who contacts me with a new idea & is willing to help w/ execution.

So please put yourself in a selfish frame of mind tomorrow and give some thought to how you might be better off in the year ahead from something that the Mid-Atlantic Micro/Nano Alliance can do for you.

Best regards,



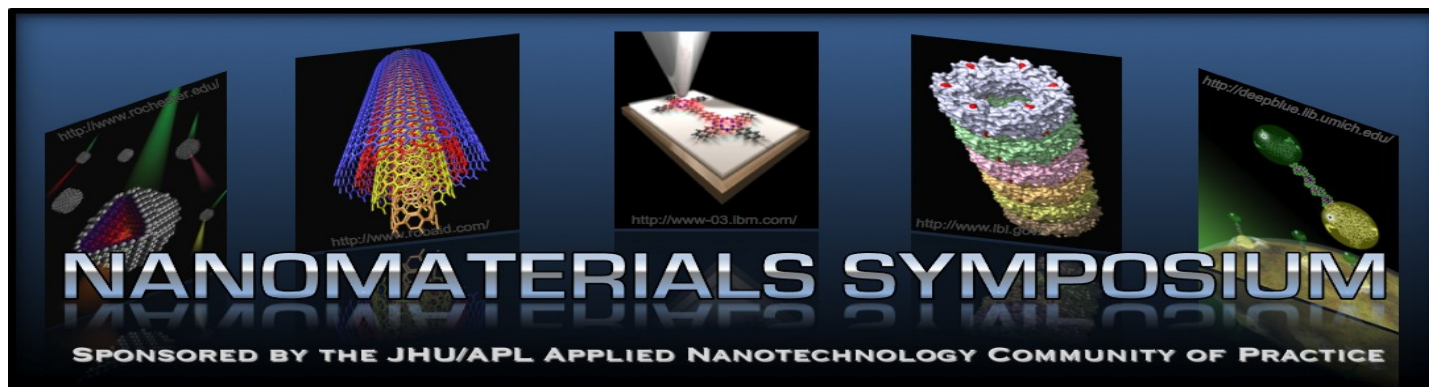
Brian Jamieson

Save the Date...Next Steps in Managing Innovation May 12th

Plymouth Meeting PA

NASA SBIR/STTR contractors and other prime contractors will have the opportunity to learn about new technology access channels and how to leverage mutual opportunities of interest <http://ipp.gsfc.nasa.gov/innovation-workshop/index.shtm>

NASA Goddard Space Flight Center Innovative Partnerships Program Office
Laura Walker Phone: (301) 286-8017



April 19, 2010

JHU/ APL Kossiakoff Center

8:30 am – 5:00 pm

Agenda

8:30-9:00	Registration & Poster Set-up	
9:00-9:20	Opening Remarks	
9:20-10:00	Applications of Nanocrystalline Diamond Films	Dr. James Butler, NRL
10:00 -10:40	Bismuth Nanowires	Dr. Tito Huber, Howard University
10:40-11:10	Break	
11:10-11:50	Measuring Carbon Nanotubes	Dr. Jeffrey Fagan, NIST
11:50-12:30	Nanomaterials	Dr. Viktoria Greanya, DARPA
12:30-1:30	Lunch & Poster Session	
1:30-2:10	Fluorescence Enhancement by Surface Plasmon Polaritons	Dr. Christopher Davis, UMCP
2:10-2:50	Colloidal Assembly on Energy Landscapes	Dr. Michael Bevan, JHU
2:50-3:20	Break	
3:20-4:00	Building Tissues from the Nanoscale and Beyond	Dr. Jennifer Elisseeff, JHU
4:00-4:40	Cancer Nanotechnology: Lessons Learned from Preclinical Translational Research	Dr. Anil Patri, NCL
4:40-5:00	Door Prizes & Poster Awards	

Registration is free and includes lunch if you register by April 1st

Register now at <http://www.jhuapl.edu/APLNano/>

UPCOMING EVENTS (continued)



Centralized Research Facilities

College of Engineering



Drexel University's Centralized Research Facilities along with FEI, EDAX and TMC present...

Current Trends in Electron Microscopy and Microanalysis

April 14, 2010

Drexel University, Bossone Research Enterprise Center

3126 Market Street, Philadelphia, PA

AGENDA

8:30 am Registration and Coffee

Morning Chair: Dr. Edward Basgall, CRF Drexel

9:00 am Introduction/Greetings Dr. Selcuk Gucer, Dean College of Engineering, Drexel University

9:10 am Latest Advances in Analytical and High-Resolution TEM/STEM Dr. Jan Ringnalda, FEI

9:40 am Measuring and cancelling stray magnetic fields for SEMs and TEMs Bill Reid, TMC

10:30 am Phase Mapping for Energy Dispersive Spectroscopy: The Future of X-ray Mapping Tara Nylese, EDAX

11:00 am Controlling floor vibration and its effect on high resolution electron microscopy Bill Reid, TMC

11:30 am Nanocharacterization in the Centralized Research Facilities at Drexel University Dr. Zhorro Nikolov, CRF Drexel

Noon Complimentary Lunch

1:00 pm CRF Lab Tours

Afternoon Chair: Dr. Craig Johnson, CRF Drexel

2:00 pm Latest Advances in Focused Ion Beam and Extreme Resolution Scanning Electron Microscopy Dr. Lucille Giannuzzi, FEI

2:30 pm On direct-writing methods for electrically contacting semiconductor and functional oxide nanowires Dr. Jonathan Spanier, Drexel University

3:20 pm Characterizing Thin-Film Photovoltaics with Electron Back-Scattered Diffraction Tara Nylese, EDAX

3:50 pm Lights, Camera, Action: A Look into the Development and Applications of Ultrafast In Situ TEM Dr. Mitra Taheri, Drexel University

Complimentary coffee and lunch will be provided. Free parking will be available to pre-registered guests. Please register by March 31. Space is limited. For more information, please contact Craig Johnson at (215) 895-5900 or [cjohnson \[at\] coe.drexel.edu](mailto:cjohnson@coe.drexel.edu).

Register at: <http://crf.coe.drexel.edu/crf/workshops>

UPCOMING EVENTS (continued)

April 1, 2010



MEMS and Sensors for Aerospace Applications 2010 *Biltmore Hotel Santa Clara, California April 21, 2010*

The workshop will address various [aerospace MEMS and sensor technologies](#), their principles of operation, typical applications and system interfaces. [Registration](#) is \$450 for MEPTec members and \$550 for non-members.



Energy Harvesting & Storage Europe and Wireless Sensor Networks & RTLS Summit 2010

Holiday Inn Munich City Centre Munich, Germany May 26 - 27, 2010

International conference and exhibition assessing the applications, technologies and opportunities for [energy harvesting and storage](#).



The 8th Annual MEMS Symposium MEMS and IC System Integration -- From Sensing to Awareness

Wyndham Hotel San Jose, California May 20, 2010

MEPTec is pleased to announce their afternoon keynote speaker, [Philippe Kahn of Fullpower Technologies](#).



Sensors Expo & Conference 2010

Donald E. Stephens Convention Center Rosemont, Illinois June 7-9, 2010

Visit <http://www.sensorsexpo.com> for details!



Hilton Head Workshop 2010:

A Solid-State Sensors, Actuators and Microsystems Workshop

Crowne Plaza Resort Hilton Head Island, South Carolina June 6 - 10, 2010

The thirteenth in the series of [Hilton Head Workshops](#) on the science and technology of solid-state sensors, actuators, and microsystems will be held on June 6-10, 2010.

Attendance will be [limited to 450 participants](#), with preference given to authors.

News bites from the Region

ISR Director [Reza Ghodssi](#) (ECE/ISR) is one of three guest editors of the "Special Proceeding" [March 2010 issue of IEEE Transactions on Industrial Electronics](#). The issue focuses on energy harvesting from ambient energy resources. This field is emerging as a potential solution to conventional oil and gas resources and is especially suited for powering low-power electronic devices.

Alireza Khaligh of the Illinois Institute of Technology and Patrick Lyle Chapman of the University of Illinois at Urbana-Champaign join Ghodssi as guest editors of this issue.

Several energy harvesting projects are ongoing in the A. James Clark School of Engineering.

A team led by ISR-affiliated Professor [Neil Goldsman](#) (ECE) has developed a novel circuit with excellent RF power harvesting efficiency that could make the recharge of portable wireless electronic devices off ambient RF energy sources feasible. A system using this circuit could operate indefinitely off of the RF energy in the environment due to cellular/television networks and wireless consumer electronics.

Researchers including Maryland NanoCenter Director [Gary Rubloff](#) (MSE/ISR) and his Ph.D. student Parag Banerjee are developing energy harvesting and energy storage devices using conventional semiconductor processes as well as self-assembled techniques for nano-fabrication.

In the MEMS Sensors and Actuators Laboratory, Ghodssi and his students are developing a vibration-capturing energy harvester that can dynamically adapt to the requirements of its environment. The harvester relies on resonance of a mass-spring system; motion in the resonator can be captured through piezoelectrics or a mechanically driven charge pump.

NSF Director Leaving - Arden L. Bement, director of the National Science Foundation, was named to lead Purdue University's new Global Policy Research Institute (GPRI). Bement will begin his new post as the director of GPRI--which will draw on seven different science and research disciplines at Purdue--on June 1 this year. Dr. Bement was appointed as NSF director in 2004.



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