

## NANO @ IOWA

News from The Nanoscience and Nanotechnology Institute at UI

September 22, 2009

Items in red are new this issue.  
(Others are carried forward from previous issues.)

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### 1. Upcoming conferences and seminars including nanoscience and nanotechnology:

- **Nanotechnology and More Efficient Computers**  
Presented by Café Scientifique of Iowa City (<http://www.physics.uiowa.edu/cafe/>)  
Dr. Hassan Raza  
Electrical & Computer Engineering, UI College of Engineering  
September 24, 2009 5:00-6:00pm  
T-Spoons Coffee Café, 301 Market Street, Iowa City IA
- **A New Method for Reproducibly Growing Patterned Nanowires**  
(Dept. of Chemistry Colloquium)  
Dr. Michael Zach  
Department of Chemistry, University of Wisconsin-Stevens Point  
October 2, 2009 3:30-4:30pm  
W228 Chemistry Building  
University of Iowa, Iowa City, IA
- **Symposium: *Nanoscience and Nanotechnology: Environmental and Health Aspects***  
**44<sup>th</sup> Annual Midwest Regional Meeting of the American Chemical Society (ACS)**  
October 23, 2009  
Sheraton Hotel & Conference Center, Iowa City, IA  
[www.mwrm2009.org](http://www.mwrm2009.org)
- **National Science Foundation Workshop: *NSF Day at the University of Iowa***  
October 8, 2009  
Iowa Memorial Union, Iowa City, IA  
There is no fee for the workshop, but preregistration is required & seating is limited.  
**Deadline to register: September 30.**  
[http://www.nsf.gov/events/event\\_summ.jsp?cntn\\_id=115411&](http://www.nsf.gov/events/event_summ.jsp?cntn_id=115411&)
- **SC09, International Conference for High Performance Computing, Networking, Storage and Analysis**  
November 14-20, 2009  
Oregon Convention Center  
Portland, Oregon  
<http://sc09.supercomputing.org/>
  - **Fifth International Workshop on High Performance Computing for Nano-science and Technology (in conjunction with SC09)**  
November 15, 2009  
<http://www.hpcnano.org/HPCNano09/index.html>

### 2. Upcoming grant opportunities and funding requests in nanoscience and nanotechnology:

- **Metallic Materials and Nanostructures (MMN)**  
National Science Foundation  
Program Number PD 03-1771  
Full Proposal Window: September 1 – October 31, 2009  
[http://nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5351](http://nsf.gov/funding/pgm_summ.jsp?pims_id=5351)

- **Image-guided Drug Delivery in Cancer (R01)**  
National Institutes of Health  
Program Number PA-09-253  
Application Due Date: October 5, 2009  
<http://grants.nih.gov/grants/guide/pa-files/PA-09-253.html>
- **NanoThermal Interfaces (NTI)**  
Department of Defense  
Funding Opportunity Number: DARPA-BAA-08-42  
Closing Date for Applications: May 21, 2009  
<http://www07.grants.gov/search/search.do;jsessionid=L1wK3gQVwKFINITCSMLfBYcGBpp5yF9812Y6GN1ST0f1tnTms59v!293637734?oppld=41766&flag2006=false&mode=VIEW>

### 3. Achievements of NNI@UI researchers:

- **Jun Ni organizes workshop for IEEE/ACM SC'09**  
Jun Ni, NNI@UI Core Faculty member, has organized a workshop "Cyber Gateway for Nano Discoveries and Innovation" for the upcoming Fifth International Workshop on High Performance Computing for Nano-science and Technology. This is held in conjunction with IEEE/ACM SC'09, in section 1 above; and addresses conducting innovative research and development using cyberinfrastructure for large-scale computations in nanoscience and nanotechnology.  
<http://www.hpcnano.org/HPCNano09/index.html>
- **Sarah Larsen receives \$450,000 NSF award to research nanocrystalline zeolites**  
In this award, funded by the Experimental Physical Chemistry Program of the Division of Chemistry, Sarah Larsen, Professor of Chemistry and NNI@UI Associate Director, together with her undergraduate and graduate student researchers, will use magnetic resonance techniques (nuclear magnetic resonance (NMR) and electron paramagnetic resonance (EPR)) to elucidate the structure and properties of nanocrystalline zeolites. Nanocrystalline zeolites (with crystal sizes of less than 50 nm) are versatile, porous nanomaterials with potential applications in a broad range of areas including catalysis, drug delivery, imaging, environmental protection, and sensing. The characterization of the physical properties of nanocrystalline zeolites on a fundamental level is critical to the realization of these innovative applications.

### 4. Highlights of some new interesting nanoscience and nanotechnology research and articles:

- **Tumors Feel the Deadly Sting of Nanobees**  
When bees sting, they pump into their victims a peptide toxin called melittin that destroys cell membranes. Now, by encapsulating this extremely potent molecule within a nanoparticle, researchers at the Washington University School of Medicine in St. Louis have created a potential new type of anticancer therapy with the potential to target a wide range of tumors. This work was reported in the *Journal of Clinical Investigation*. Samuel Wickline, M.D., principal investigator of the Siteman Center of Cancer Nanotechnology Excellence, and his colleagues developed their so-called nanobees to deliver toxic peptides such as melittin specifically to cancer cells while sparing healthy cells from the otherwise nonselective havoc these molecules cause.  
[http://nano.cancer.gov/news\\_center/2009/aug/nanotech\\_news\\_2009-08-27a.asp](http://nano.cancer.gov/news_center/2009/aug/nanotech_news_2009-08-27a.asp)
- **Nanoparticles Cross Blood-Brain Barrier To Enable "Brain Tumor Painting"**  
Earlier this year, researchers at the University of Washington reported that they had developed a toxin-nanoparticle combination that inhibits brain cancer invasion when added to tumor cells growing in culture. Now, the same group of investigators, led by Miqin Zhang, Ph.D., principal investigator of the Nanotechnology Platform for Pediatric Brain Cancer Imaging and Therapy, has developed an improved version of this toxin-nanoparticle construct that, when injected into animals, can cross the blood-brain barrier (BBB) and reveal the presence of tumors in the brain.  
[http://nano.cancer.gov/news\\_center/2009/aug/nanotech\\_news\\_2009-08-27h.asp](http://nano.cancer.gov/news_center/2009/aug/nanotech_news_2009-08-27h.asp)
- **After the Transistor, a Leap Into the Microcosm**  
With silicon nanowires, computer scientists seek a basic building block for a new kind of electronics to outpower today's transistors.

## **About NANO @ IOWA**

NANO @ IOWA is a bi-weekly electronic newsletter to inform faculty, staff, and students about important news and events in nanoscience & nanotechnology. This newsletter is provided as a service of The Nanoscience and Nanotechnology Institute at UI (NNI@UI). To subscribe to NANO @ IOWA, please send an e-mail to [NNI@uiowa.edu](mailto:NNI@uiowa.edu) with subject line: Subscribe NANO @ IOWA. In the body of the message, type: (your first name), (your last name). To unsubscribe, send an E-mail message to: [NNI@uiowa.edu](mailto:NNI@uiowa.edu) with subject line: Unsubscribe NANO @ IOWA . In the body of the message, type: (your first name) (your last name).

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<http://research.uiowa.edu/nniui/>