

## Materials & Nanoscience Outreach News

Materials and Nanoscience outreach and education activities  
in Nebraska

### Recent Outreach Activities

#### Sunday with a Scientist

University of Nebraska State Museum presented "DNA: The Molecule of Life" this summer led by assistant Chemistry professor Rebecca Y. Lai. Dr. Lai, along with graduate students from the department, and support from NCMN helped visitors better understand the history, structure, and importance of DNA through visuals and hands-on activities. Lai's research focuses on the development of electrochemical biosensors, including sensors for detection of DNA. Electrochemical sensing has the potential for many important applications, ranging from cancer detection to finding explosives in the environment.

<http://chem.unl.edu/faculty/eachfaculty/lai.shtml>.



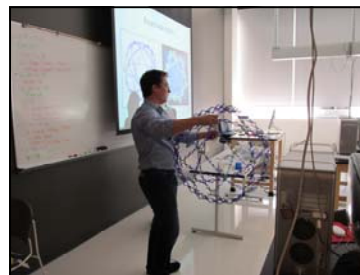
#### Teachers Nanoscience Workshop

Science teachers from Lincoln Public Schools and other education programs at UNL participated in a "Hands-on Nanoscience" NCMN Professional Development Workshop covering the topic of "Squishy Circuits, Batteries and other Electronics" by Physics Prof. Steve Ducharme and his colleagues provided teaching and one on one coaching on how to use the kits to enrich and support current nanoscience curriculum. Resources, videos, and powerpoints from the workshop can be found at <http://www.unl.edu/ncmn/outreach/teachers.shtml>.



#### NanoCamp 2012

Students, 6-9th grade, participated in a week long Nanocamp held in June where UNL faculty and graduate students, NCMN and Bright Lights staff, future science teachers and the Department of Physics & Astronomy all worked together to present a mini-course about nanotechnology at UNL. Topics and supporting activities included synthetic polymers, carbon nanotubes, self assembly, metal organic polymers, DNA, stem cells, catalysts, electronic circuits, nanocomposites, ferrofluids, and nano ice cream! Resources and more information about the camp can be found at <http://www.unl.edu/ncmn/outreach/>



#### Administrative Support Available for NCMN Member Outreach Activities

NCMN offers additional outreach help, including some administrative services to NCMN faculty members in fulfilling the Broader Impacts outreach component in NSF grants. **Contact:** Terese Janovec, Assistant Director and Education/Outreach Coordinator, 855 N. 16th Street, Room N201C, phone: 402 472-2716, fax: 402 472-6148, e-mail: [tjanovec3@unl.edu](mailto:tjanovec3@unl.edu).

## Culler After School Nanoscience Program



Faculty members, and NCMN students and staff presented an 8 week Nanoscience After School Program to junior high students at Culler Middle School this fall. The one hour presentations were given to students who had limited knowledge of nanoscience. Information included videos, hands-on activities, giveaways and discussions of nano applications which provided a broad overview of nanoscience/nanotechnology as a field with many career opportunities. Students were able to gain a comprehensive understanding through activities that introduced them to the unique properties at the nanoscale. Professors participating were: Steve Ducharme (Physics), Christian Binek (Physics), Yunshen Zhou (Engineering), Rebecca Lai (Chemistry), Eva Franke-Schubert (Engineering), and graduate student Chris Marin (Cheung group-Chemistry).



## NCMN Outreach Upcoming Events

**Pioneers Nature Center**  
November-January  
"Nano to Nature" Display

**Big Red Road Show**  
March 3, 1:00-3:30 pm  
CenturyLink Center, Omaha

**Women in Science Conference**  
February 15-16  
Embassy Suites, Lincoln

**NanoDays**  
March 30-April 7  
Westfield Mall

**NanoArt Contest**  
Spring 2013

## Nanoscience Cafe

Dr. Jody Redepenning, chemistry professor at UNL, spoke at The Mill-Downtown in November about his discoveries in composite biomaterials leading to hard tissue replacement for soldiers and others.



His research uses a simple process involving heating a monomer until it becomes as hard as bone. That finding has led to a biocomposite that can be used as a bone replacement, a screw, or other orthopedic appliances.

See video at:  
<http://www.chem.unl.edu/videos/bone.shtml>

## Resources

### Nanoscience Kits

Interactive kits, covering a variety of nanoscience topics, are available for checkout for science outreach/teaching purposes from the NCMN education outreach office at 201C Voelte-Keegan Nanoscience Center. Examples are at:

<http://www.nisenet.org/catalog>

### NCMN Outreach Link

[www.unl.edu/ncmn/outreach/](http://www.unl.edu/ncmn/outreach/)

## Nebraska Center for Materials and Nanoscience *Bridging Nanoworld Opportunities in Nebraska...*

The Nebraska Center for Materials and Nanoscience (NCMN) at the University of Nebraska is a multidisciplinary research organization involving 85 faculty members from the Departments of Physics and Astronomy, Chemistry, Electrical Engineering, Mechanical and Materials Engineering, Chemical & Biomolecular Engineering, and others. The NCMN strives for excellence in research, graduate and postdoctoral education and service in materials science and engineering, and nanoscience. It is on the forefront of research in a high-priority national program, the National Nanotechnology Initiative. The NCMN also works with state and national industries in support of Nebraska's overall economic development.

**NCMN**  
Dr. David Sellmyer, Director  
N201A Voelte-Keegan Nanoscience Center  
P.O. Box 880298  
University of Nebraska  
Lincoln, Nebraska 68588-0298

**NCMN Education and Outreach**  
Phone: 402-472-2716  
Fax: 402-472-6148  
E-mail: [tjanovec3@unl.edu](mailto:tjanovec3@unl.edu)