

N C M N

Nebraska Center for Materials and Nanoscience

University of Nebraska-Lincoln



Bridging NanoWorld Opportunities in Nebraska



What is NCMN?

NCMN, the Nebraska Center for Materials and Nanoscience at the University of Nebraska is on the forefront of research in nanotechnology. Founded in 1988 the Center supports about 80 research scientists working in the nanoscience area from the University of Nebraska in Physics, Chemistry, Electrical Engineering, Mechanical and Materials Engineering, Chemical Engineering, and other departments. The Center also works with state and national industries in support of Nebraska's overall economic development.

Faculty who are members of the Center carry out research concerned with atomic manipulation, self-assembly, ordered nanoarrays, quantum dots and wires, nanomechanics, nanoelectronics, quantum computing, nanoptics, molecular design, nanobiological functions and life sciences, and nanoelectromechanical systems to name a few areas. NCMN moved into the new 32,000-square-foot Voelte-Keegan Nanoscience Research Center in 2012 which provides state-of-the-art laboratories, shared research facilities and administrative space in a central location.

Graduate and Postdoctoral Education

The Nebraska Center for Materials and Nanoscience provides help to undergraduate and graduate students, as well as postdoctoral assistants of NCMN faculty members through a variety of methods. One example is the high-tech fabrication and characterization equipment available in eight Central Facilities in the Center. NCMN faculty members also participate in several educational programs including NSF-supported Research Experiences for Undergraduates Programs in Nanostructured Materials and Chemistry. Typically they also support 20-30 undergraduate research assistants paid through external grants each year, several UCARE students, and postdoctoral associates.



Photo courtesy University Communications

New Voelte-Keegan
Nanoscience Research Center

Related Centers and Programs

NSF-MRSEC

The Materials Research Science and Engineering Center at the University of Nebraska was established in 2002 by the National Science Foundation to carry out research on magnetic and ferroelectric structures and materials at the nanometer scale. Many NCMN members are part of this center.

DOE-NSF National Collaborations

NCMN faculty are part of several national programs on magnetic materials for energy applications such as electric motors for automobiles and wind turbines.

Center for Nanoferroic Devices

This is a collaboration involving six academic institutions studying non-conventional, low-energy devices for technologies combining memory and logic functions. It is supported by the National Institute of Standards and Technology and the Semiconductor Research Corporation.

Education Outreach Programs

A variety of education and outreach programs each year include NanoDays at the Mall, nanocamps, teacher's workshops, NanoArt exhibits, Nanoscience Cafes, building tours, after school programs about nanoscience, and more.

What is Nano?

Nano is the scientific term meaning one-billionth so a nanometer is one one-billionth of a meter. (A human hair measures about 50,000 nanometers across). When objects are below 100 nanometers in size or on a nanoscale, they exhibit unexpected chemical and physical properties such as remarkably lower resistance to electricity, or faster chemical reactions. Nanotechnology is the manipulation of material at the nanoscale to take advantage of these properties.

The exploration of nanotechnology is going on around the world and includes researchers from many different fields including physics, chemistry, material sciences, engineering, biology, and medicine.

Nanoscience study and make very tiny, nanometer-sized objects making possible new applications that could alter everyday items, from the clothes we wear to the cars we drive. Nanotechnology is already influencing medical treatments, computers, energy efficiency, and more.

Nanoparticles are currently used in many different consumer products such as packaging material, sunscreens, antiseptics, tennis rackets, ceramic coatings for solar cells, glues, and in kitchen tiles and windows. These particles are the building blocks of nature which can be arranged to build some amazing things...some things we haven't even thought about yet. The possibilities are endless.

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Have Questions?

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