

UC SANTA BARBARA

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National Science Foundation Selects UC Santa Barbara for New National Center for Nanotechnology in Society

The National Science Foundation has selected the University of California, Santa Barbara for a new National Science and Engineering Center to study the societal implications of nanotechnology.

The NSF will provide \$5 million in grant funds to support the Center for Nanotechnology in Society--UCSB in its first five years of operation. The grant will be renewable.

The center will help scientists and scholars, policy makers, and the public better understand the societal implications of nanotechnologies, particularly as they unfold over the next decade. The center also will play an important role in stimulating unprecedented interdisciplinary collaboration across the nation among faculty members and students in the social sciences, humanities, physical and life sciences, and engineering.

The lead principal investigator of the new CNS--UCSB is Bruce Bimber, a professor of political science and of communication and head of the Center for Information Technology and Society at UCSB. Two other principal investigators and the co-directors of the CNS--UCSB are Barbara Herr Harthorn, associate director and research anthropologist at the Institute for Social, Behavioral, and Economic

Research at UCSB, and W. Patrick McCray, an associate professor of history.

"A revolution in science and technology is going on around us, and most people are only dimly aware of it," said Bimber. "Our job at this new center is to try to understand how these technologies are affecting societies, and to influence the direction of innovation in positive ways."

David Marshall, dean of humanities and fine arts, said that understanding nanotechnology "in its historical, cultural, and social contexts will help our society to chart the future as this exciting field unfolds."

The new UC Santa Barbara facility will be one of two major centers in the country---the other will be at Arizona State University---in an NSF-sponsored national network of researchers studying nanotechnology and society.

"We think that UC Santa Barbara presents the perfect environment for addressing such a complex and important issue, and we are pleased that the NSF agreed," said Michael Witherell, vice chancellor for research. "This center will take a novel approach to studying the impact of new technology on society, involving an extraordinary collaboration of researchers from very different fields."

UC Santa Barbara is already home to the California NanoSystems Institute, a joint effort with UCLA and industrial partners to generate ideas, discoveries, and talent to fuel innovation in nanotechnology.

Campus officials underscored how the new Center for Nanotechnology in Society embodies UCSB's highly interdisciplinary approach to research.

"This is a real advantage in advancing our understanding of critical social issues and the social impacts of technology," said Melvin Oliver, dean of social sciences. "Few institutions have these cross-cutting interests and can mobilize them so effectively."

While it will be based at UCSB, the Center for Nanotechnology in Society is a large-scale international collaborative enterprise that will involve social scientists and humanists from all over the nation and the globe. Funds for this new national center will support a wide range of activities, including:

- Education and research opportunities for undergraduate and community college students.
- National and international surveys to explore public perceptions of nanotechnology.
- An information clearinghouse as well as Web-based archive, library, and databases that will make available a wide range of publications, reports, and other data pertaining to the social understanding and implications of nanotechnology.
- Various other education and research initiatives that will inform and affect education, social discourse, workforce development, and diversity.

One of the challenges the new center will embrace is helping policy makers, scientists, and the general public understand the opportunities and the risks that the nano-enterprise affords.

Nanotechnology and nanoscience are increasingly important areas of research for scientists and engineers. To its advocates, nanotechnology is a "transcendent realm" where research in the physical and biotechnological sciences may converge with information technologies and the cognitive sciences. Nanotechnology involves three key components:

research and technology development at the scale of 1 to 100 nanometers (a nanometer is one-billionth of a meter); creating structures and devices that have novel properties and applications because of their small size; and the ability to

control or manipulate these materials and devices on the atomic scale.

Nanotechnology applications range from new electronic devices and the means to fabricate them to materials for health and environmental uses. Some nanotech products are already on the market while others are decades away from realization outside the lab.

The Center for Nanotechnology in Society will track societal response in the United States and abroad to these emerging technologies. While social and economic benefits of specific nanotechnologies may be enormous (for example, development of a cost-effective, low energy membrane for water purification), effects on health, safety, and the environment are largely unknown and may become cause for public concern. The center will study emerging perceptions of risk and public concerns about nanotechnology and will provide a context to involve nanoscientists in the discussion.

The center's research will be organized into interdisciplinary research groups, each involving several faculty members and researchers who will address major topics in research on social change and nanoscale science, engineering and technology. One group will study nanotechnology's historical and current contexts while another will address questions related to institutional, political, and socio-cultural factors influencing the innovation, global diffusion, and commercialization of nanotechnologies. A third group will examine social risk perception concerning emerging nanotechnologies, assess methods for incorporating public concerns, and analyze social protest movements related to nanotechnology. The center also will support education and outreach activities.

The new center will open on January 1, 2006 in campus offices located both in North Hall and in the new California NanoSystems Institute (CNSI) building.

Other UCSB faculty members involved in the Center for Nanotechnology in Society:

- Richard Appelbaum, professor of sociology and of global and international studies; director, Institute for Social, Behavioral, and Economic Research; co-director, Center for Global and International Studies
- Fiona Goodchild, director of education, California NanoSystems Institute
- Evelyn Hu, professor of electrical and computer engineering; co-director, California NanoSystems Institute
- Christopher Newfield, professor of English
- Dave Seibold, professor of communication

About UC Santa Barbara

The University of California, Santa Barbara is a leading research institution that also provides a comprehensive liberal arts learning experience. Our academic community of faculty, students, and staff is characterized by a culture of interdisciplinary collaboration that is responsive to the needs of our multicultural and global society. All of this takes place within a living and learning environment like no other, as we draw inspiration from the beauty and resources of our extraordinary location at the edge of the Pacific Ocean.