

## CISER

The Cornell Institute for Social and Economic Research (CISER) now houses a Research Data Center (RDC) under the auspices of the U.S. Census Bureau. Cornell's RDC operates as part of the New York Census Research Data Center (NYCRDC), a consortium of research organizations. As one of only nine such facilities nationwide, the NYCRDC at Cornell allows researchers to conduct research within a highly secure facility using the confidential microdata underlying many census data products. It brings the potential for expanded research opportunities to Cornell faculty and their collaborators. Under guidelines established by the Census Bureau's Center for Economic Studies, RDC research proposals undergo rigorous evaluation. Potential projects must demonstrate not only scientific integrity, but also the potential to benefit census data or research programs, and must be conducted without risk of respondent disclosure. The NYCRDC at Cornell is funded in part by NSF grants to Cornell University and by research contracts with the Census Bureau.  
[www.ciser.cornell.edu/NYCRDC/home.shtml](http://www.ciser.cornell.edu/NYCRDC/home.shtml)

## EDI

One of Cornell University's leading resources on employment and disability information for businesses, lawmakers, federal and state agencies, educational institutions, unions, and service providers is the Employment and Disability Institute (EDI). Located in the School of Industrial and Labor Relations, the institute conducts research, provides training and technical assistance, and produces scholarly publications under the sponsorship of federal, state, and private funding. With more than 27 faculty and staff, the institute is housed in the ILR Extension Building in the center of Cornell's campus. Consistent with the mission of Cornell and the ILR School, EDI staff help clarify major issues related to disability for the development of public policy and transformation into constructive practice. A pioneer in the field since the late 1960s, it informs policymakers, practitioners, advocates, and people with disabilities worldwide.  
[www.edi.cornell.edu](http://www.edi.cornell.edu)

## ISS

The Institute for the Social Sciences at Cornell (ISS), founded in 2004, encourages interdisciplinary social science research collaborations, engages the Cornell community in discussions of cutting-edge social science topics, and helps to attract and retain top social science faculty. Each year the ISS sponsors a new three-year theme project on a critical social science question. The inaugural 2004–7 theme project focuses on the evolving family. Key issues include how race, ethnicity, and social class influence marriage and fatherhood; how these changes affect children; and how the behaviors of nonhuman animals inform these issues. In addition to a series of research activities, the project also includes public lectures, conferences, and new courses.

Activities for the newly selected 2005–8 theme project are being planned for next year, the most active year of the project. The new project, on social and information networks in real and virtual communities, will explore the hidden role of networks in empirical studies of peer influence, information systems as mediators of agent behavior, and the spatiotemporal structure of online information.  
[www.socialsciences.cornell.edu](http://www.socialsciences.cornell.edu)

## CHESS

The National Science Foundation awarded \$18 million to a team from the Cornell High Energy Synchrotron Source (CHESS) and the Laboratory of Elementary Particle Physics (LEPP) to develop a new type of synchrotron radiation X-ray source, called an Energy Recovery Linac (ERL). The four-year grant will enable the team to develop fully and prototype critical components of the ERL and to explore research possibilities enabled by the unique characteristics of the machine. In several years, Cornell plans to submit a proposal for a full scale ERL source as an upgrade to the CHESS facility. Such a source would enable Cornell scientists and visitors to explore new areas of molecular and nanoscale imaging, biological cellular imaging, and ultrafast chemical reaction studies with X-rays.

[www.chess.cornell.edu](http://www.chess.cornell.edu)



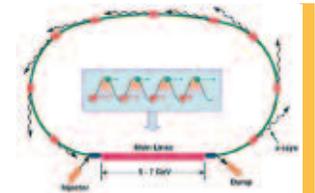
John Abowd directs CISER.



Susan Bruyère directs EDI.



David Harris directs ISS.



**NBTC**

Cornell's Nanobiotechnology Center (NBTC) held its sixth annual symposium in partnership with the New York Academy of Sciences (NYAS) and the Kavli Institute for Nanoscale Science at Cornell. NBTC currently supports 32 interdisciplinary projects. Members presented recent advances from their research programs, and invited speaker Cees Dekker, Kavli Institute of Nanoscience at Delft University of Technology, talked about DNA translocation through solid-state nanopores. Detailed coverage is available on the NYAS website ([www.nyas.org](http://www.nyas.org)).

The NBTC education program's successful traveling exhibit, "It's a Nano World," visited three additional cities—Cleveland, Ohio; Columbia, South Carolina; and Lafayette, Louisiana—reaching an estimated 250,000 people during the year. NBTC is currently developing a second traveling exhibit, "Too Small to See," which will open in fall 2006. Also in 2006, the NBTC will be running an international research experience program for graduate and undergraduate students associated with any of the 13 science and technology centers supported by the NSF.

[www.nbtc.cornell.edu](http://www.nbtc.cornell.edu)

**CNF**

The Cornell NanoScale Science and Technology Facility (CNF) held their annual meeting this past September, at which colleagues shared the research conducted by CNF users and staff over the past year. Introduced at the meeting was CNF's new interim director John Silcox, Applied Engineering and Physics, and long-time principal investigator with CNF. Events included talks by Thomas N. Theis, director of physical sciences at IBM, and Steven Squyres, Cornell's Goldwin Smith Professor of Astronomy. There were 16 CNF user presentations and a poster session.

Among 55 CNF poster presentations, graduate research assistants Xi Chen, Electrical and Computer Engineering, and Abhishek Ramkumar, Biomedical Engineering, presented "Ultrasonic Microprobes with Integrated Sensors for Biomedical Applications." With the same technology used to make nanoscale computer chips, this team designed a high-frequency microprobe that allows easier cutting of cardiac membrane by reducing the vibration force. Meanwhile, sensors on the probe detect electrical and mechanical signals from the heart. This ability to detect signals while cutting has important potential for microsurgery.

[www.cnf.cornell.edu](http://www.cnf.cornell.edu)

**CCMR**

The Cornell Center for Materials Research (CCMR) recently made a major advancement in the technology of carbon nanotubes. Carbon nanotubes are hollow tubes made from single sheets of carbon atoms. In addition to being the stiffest material known, carbon nanotubes are extremely light and small. Although their small size makes them difficult to work with, carbon nanotubes are potentially the ultimate building block for nanoscale mechanical devices, such as ultrasmall chemical detectors.

CCMR fabricated a simple mechanical device similar to a guitar string out of a single nanotube. This nanotube vibrates with a characteristic "note" or frequency, which is far beyond the range of human hearing. The nanotube can even be tuned. Devices such as this have potential applications ranging from microelectronics to the production of ultrasensitive chemical and biological sensors. V. Sazonova et al, "A Tunable Carbon Nanotube Electromechanical Oscillator," *Nature* 431 (2004): 284–7. [www.ccmr.cornell.edu](http://www.ccmr.cornell.edu).

**LEPP**

The Laboratory for Elementary-Particle Physics (LEPP) conducted an open house at Wilson Laboratory this past summer to encourage the general public to tour the lab and learn about the fascinating science that takes place there. As mentioned during the opening remarks, the science at the lab depends critically on the formula  $E=mc^2$ . LEPP consequently integrated recognition of Einstein's contributions and celebration of the World Year of Physics into the day's activities.

Wilson Laboratory was open to visitors for over four hours, as more than 600 attendees enjoyed guided tours of the LEPP and CHES research facilities and participated in a variety of hands-on demonstrations led by Wilson Lab staff members. One such demonstration, "Much Ado about Nothing," let guests test balloons, marshmallows, and soda pop inside a vacuum chamber, while staff members explained how the behavior of atoms in a vacuum is central to the functioning of the particle accelerator. [www.lepp.cornell.edu](http://www.lepp.cornell.edu)

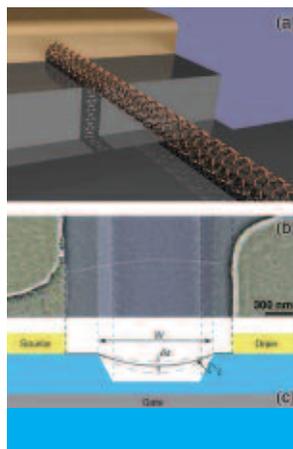
NBTC



Doug Hicks



John Silcox is interim director of CNF.



LEPP

