Center for Adaptive Optics*
Santa Cruz, CA

The Center for Adaptive Optics (CfAO) will concentrate on astronomical and vision science applications of adaptive optics and will reach out to other adaptive optics communities to share technologies. It will develop new instruments optimized for adaptive optics. Adaptive optics is a method for removing the blurring of images caused by changing distortions within optical systems. Research areas include: AO for Extremely Large Telescopes, Extreme Adaptive Optics enabling ultra-high-contrast astronomical observations, and AO instrumentation and Compact Vision Science Instrumentation for Clinical and Scientific Use. For more information: http://cfao.ucolick.org.

Center for Behavioral Neuroscience*
Atlanta, GA

The Center for Behavioral Neuroscience (CBN) provides the resources to foster innovative research in behavioral neuroscience, with a specific focus on the neurobiology of social behavior. Research areas are organized into collaboratories, which include: Fear, Aggression, Affiliation, and Reproduction Behaviors. The collaboratories are supported by cores which will be established in Molecular, Cellular, Systems, and Computational Neuroscience, as well as in Imaging and Behavioral Technologies. For more information: www.cbn-atl.org.

Center for Biophotonics, Science and Technology
Sacramento, CA

The Center for Biophotonics, Science and Technology (CBST) has a mission to improve the quality of life by dramatically expanding the use of photons in, and the development of technology for, the life sciences, bioengineering and health care. Biophotonics is the science of generating and harnessing light (photons) to image detect and manipulate biological materials. Research areas include: Advanced Bioimaging (microscopy focus), Molecular and Cellular Biophotonics (membranes, assays, sensors), and Medical Biophotonics (new medical technology development). For more information: http://cbst.ucdavis.edu.

Center for Coastal Margin Observation and Prediction
Portland, OR

The Center for Coastal Margin Observation & Prediction will enable a nearly ubiquitous, river-to-ocean observation of physical and ecological processes and to further our understanding of these processes in order to manage, operate, and sustain coastal resources and ecosystems effectively - while fostering technological innovation, and training a diverse, scientifically literate and technologically savvy workforce. For more information: http://www.stccmop.org/.

Center for Embedded Networked Sensing
Los Angeles, CA

The Center for Embedded Networked Sensing (CENS) is developing Embedded Networked Sensing (ENS) Systems and applying this revolutionary technology to critical scientific and social applications. ENS systems are massively distributed collections of smart sensors and actuators embedded in the physical world. Research areas include: Adaptive Self-Configuring Wireless Systems, Coordinated Actuation, Collaborative Signal Processing, and Micro/Nano Sensor Technology. The societal applications of this research include: Habitat Sensing, Seismic Sensing and Structural Monitoring, Contaminant Transport Monitoring, and Monitoring of Marine Microorganisms. For more information, visit http://www.cens.ucla.edu.

Center for Environmentally Responsible Solvents and Processes
Chapel Hill, NC

The vision of the Center for Environmentally Responsible Solvents and Processes (CERSP) is to enable a revolution in sustainable technology through cutting-edge, integrated physical science/engineering; social science; and educational programs. CERSP explores the fundamental science and engineering principles associated with CO2-related processes, exposing students to research and innovation skills that make a difference to society. Research areas include: Macromolecular Synthesis and Engineering, Functional Materials and Devices, Nanostructures and Separations. For more information: http://www.nsfstc.unc.edu.

Center for Integrated Space Weather Modeling*
Boston, MA

The Center for Integrated Space Weather Modeling (CISM) is developing the next generation of space weather computer models to predict Solar Activity, the Solar Wind, and the effects of these on Earth's Magnetosphere and Ionosphere. CISM is dedicated to developing integrated computer models to provide reliable forecasts of potentially harmful space weather events that could put astronauts at risk, disable satellites, disrupt communications, or cause costly damage on earth. Students interested in applying for undergraduate research positions should contact individual CISM institutions directly. Contact information is available on the CISM website http://www.bu.edu/cism/.

Center for Layered Polymeric Systems
Cleveland, OH

The Center for Layered Polymeric Systems, headquartered at Case Western Reserve University, will conduct research at the intersection between the physical sciences and polymer science and engineering. The research will center on a layering process created at Case that imparts features on the micro- and nanoscales. The forced-assembly process can combine otherwise incompatible polymers and other materials to produce hierarchical structures. For more information: http://www.case.edu/events/clips/clips.html.

Center on Materials and Devices for Information Technology Research
Seattle, WA

The Center on Materials and Devices for Information Technology Research (MDITR) is based on the broad technical mission to understand the basic molecular and structural nature of non-traditional (i.e. organic) IT materials; synthesize and process molecular systems that have novel properties; and design and fabricate useful low-cost devices with superior electronic, photonic, and opto-electronic properties. For example, MDITR is working on an electro-optic modulator that can translate the electronic signals from a telephone, computer, or radar at least ten times faster than existing devices for a fraction of the cost. Researchers from a wide variety of disciplines and Universities work together to achieve these goals. MDITR offers undergraduate research opportunities in theoretical, synthetic and materials chemistry, optics (physics) and mechanical and electrical engineering at three main locations: University of Washington in Seattle; University of Arizona in Tucson; and Georgia Institute of Technology in Atlanta. For more information: http://www.stc-mditr.org/REU.

Center for Microbial Oceanography: Research and Education*
Honolulu, HI

The Center for Microbial Oceanography: Research and Education (C-MORE) was established to facilitate a more comprehensive understanding of the diverse assemblages of microorganisms in the sea, ranging from the genetic basis of marine microbial biogeochemistry including the metabolic regulation and environmental controls of gene expression, to the processes that underpin the fluxes of carbon, related bioelements and energy in the marine environment. Undergraduates interns are sought from a variety of ocean and earth-science disciplines. ***Note:*** C-MORE internships are available during Fall and Spring semesters only -- not during the summer. For more information: http://cmore.soest.hawaii.edu/education/scholars_program.htm.

Center for Multi-Scale Modeling of Atmospheric Processes
Fort Collins, CO

The Center for Multi-Scale Modeling of Atmospheric Processes (CMMAP) will focus on improving the representation of cloud processes in climate models. The need for such improvements has been one of the most important limitations on the reliability of climate-change simulations. CMMAP will address this problem through a revolutionary new approach called the multi-scale modeling framework (MMF). Whereas conventional parameterizations are based on statistical theories involving uncertain closure assumptions, MMFs represent cloud processes on their native scales, and include the cloud-scale interactions among the many physical and chemical processes that are active in cloud systems. A very important strength of an MMF is that the results produced can be evaluated by comparison of simulated and observed cloud-scale processes. For more information: http://cmmap.org.

Center for Remote Sensing of Ice Sheets
Lawrence, KS

The Center for Remote Sensing of Ice Sheets is developing innovative radar sensors and autonomous platforms (unattended aircraft and rovers) to study the ice sheets and glaciers of Greenland and West Antarctica in order to predict their behavior. These ice sheets and glaciers contain most of the world's fresh water, and should they completely melt, the level of the sea would rise significantly. Since over a third of the world's population lives in coastal regions, the effect of global climate change on these ice sheets has global significance. Research areas include: Electrical Engineering, Computer Science, Aeronautical Engineering, Geography, Geology, Glaciology. For more information: http://cresis.ku.edu/.

Center for Sustainability of Semi-Arid Hydrology and Riparian Areas
Tucson, AZ

The Center for Sustainability of Semi-Arid Hydrology and Riparian Areas (SAHRA) is focused on promoting sustainable management of water resources in semi-arid regions, through stakeholder-driven interdisciplinary research, aggressive public outreach and strong education initiatives, which leads to the rapid dissemination and application of cutting-edge scientific knowledge. Research areas include: Regional Studies of Spatial and Temporal Components of the Water Balance, Basin Scale Water and Solute Balances, Functioning of Riparian Systems, Multi-Resolution Integrated Modeling, and the Analysis of Water Resources Competition, Conflict, Planning and Policy. Students can expect to spend 25 - 50% of their time in the field. For more information: http://www.sahra.arizona.edu.

Center of Advanced Materials for Purification of Water with Systems
Urbana, IL

The Center of Advanced Materials for Purification of Water with Systems (WaterCAMPWS) is a National Science Foundation Science and Technology Center headquartered on the University of Illinois at Urbana-Champaign campus. Structured around a model of interdisciplinary, multi-institution, and international collaboration, the WaterCAMPWS mission is to develop revolutionary technologies to purify the earth's waters for drinking, agricultural, industrial, and ecological applications. Teams of WaterCAMPWS researchers and students are working on the next generation of new materials and systems for safely and economically disinfecting, decontaminating, desalinating and reusing water. Research areas include chemical oxidation-reduction science and processes; biochemical processes; and active aqueous transport processes. For more information visit: www.watercampws.org.

Nanobiotechnology Center
Ithaca, NY

The Nanobiotechnology Center (NBTC) is characterized by its highly interdisciplinary nature and features a close collaboration between life scienteists, physical scientists, and engineers. Nanobiotechnology is an emerging area of scientific and technological opportunity that integrates nano/microfabrication and biosystems to the benefit of both. Research areas include: Biomolecular Devices and Analysis, Cellular Microdynamics, Cell-Surface Interactions, Nanoscale Cell Biology, and Nanoscale Materials. For more information: http://www.nbtc.cornell.edu.

National Center for Earth-Surface Dynamics
Minneapolis, MN

The purpose of the National Center for Earth-surface Dynamics (NCED) is to catalyze development of an integrated, predictive science of the processes shaping the surface of the Earth, in order to transform management of ecosystems, resources, and land use. NCED's summer research for 2008 will be focused on stream and delta restoration projects. Students will spend time in the laboratory and at an NCED field site as part of a team working on a restoration project -- either the effects of removal of a dam or research on the restoration of the Mississippi delta in coastal Louisiana. Students will be based at the St. Anthony Falls Laboratory, University of Minessota, but will travel to either Louisiana or Oregon with their team to spend approximately 3 weeks at the field site. For more information: http://www.nced.umn.edu/USIP.

Team for Research in Ubiquitous Secure Technology
Berkeley, CA

The Team for Research in Ubiquitous Secure Technology (TRUST) is devoted to the development of a new science and technology that will radically transform the ability of organizations (software vendors, operators, local and federal agencies) to design, build, and operate trustworthy information systems for our critical infrastructure. For more information: http://trust.eecs.berkeley.edu.

*** Indicates Centers NOT hosting summer interns. Please solicit website for other opportunities**