

# Breakout Session Descriptions

## NSF DIRECTORATES

**Biological Sciences (BIO):** The BIO Directorate provides support for research to advance understanding of the underlying principles and mechanisms governing life. Research studies range across progressively more complex systems and scales encompassing the structure and dynamics of biological molecules, cells, tissues, organs, organisms, populations, communities, and ecosystems up to and including the global biosphere. Comprehensive concepts that span and unify the diverse areas of biology include complexity, robustness, communication, resilience, adaptability and cooperation. Achieving a coherent understanding of the complex biological web of interactions that is life is a major challenge of the future. This challenge will require that knowledge about individual biological units, networks, sub-systems and systems be compiled and connected from the molecular to the global level and across scales of time and space.

**Computer & Information Sciences & Engineering (CISE):** The CISE Directorate has three goals: (1) To enable the U.S. to uphold a position of world leadership in computing, communications, and information science and engineering; (2) To promote understanding of the principles and uses of advanced computing, communications and information systems in service to society; and (3) To contribute to universal, transparent and affordable participation in an information-based society. To achieve these, CISE supports investigator initiated research in all areas of computer and information science and engineering, helps develop and maintain cutting-edge national computing and information infrastructure for research and education generally, and contributes to the education and training of the next generation of computer scientists and engineers.

**Education & Human Resources (EHR):** Goals of the EHR Directorate are to: (1) Prepare the next generation of science, technology, engineering, and mathematics (STEM) professionals and attract and retain more Americans to STEM careers; (2) Develop a robust research community that can conduct rigorous research and evaluation that will support excellence in STEM education and that integrates research and education; (3) Increase the technological, scientific and quantitative literacy of all Americans so that they can exercise responsible citizenship and live productive lives in an increasingly technological society; and (4) Broaden participation (individuals, geographic regions, types of institutions, STEM disciplines) and close achievement gaps in all STEM fields.

**Engineering (ENG):** The ENG Directorate promotes the progress of engineering in the U.S. in order to enable the Nation's capacity to perform. Its investments in engineering research and education aim to build and strengthen a national capacity for innovation that can lead over time to the creation of new shared wealth and a better quality of life. Most NSF programs in engineering are funded through the Directorate for Engineering, which also sponsors the NSF's Small Business Innovation Research (SBIR) program.

**Geosciences (GEO):** The mission of the GEO Directorate is to support research in the atmospheric, earth, and ocean sciences. As the principal source of federal funding for university-based fundamental research in the geosciences, GEO addresses the nation's need to understand, predict, and respond to environmental events and changes to use Earth's resources wisely. Basic research in the geosciences advances scientific knowledge of Earth's environment, including resources such as water, energy, minerals, and biological diversity. GEO-supported research also advances our ability to predict natural phenomena of economic and human significance, such as climate changes, weather, earthquakes, fish-stock fluctuations, and disruptive events in the solar-terrestrial environment.

**Mathematical & Physical Sciences (MPS):** The scope of scientific and educational activity supported in MPS is enormous, ranging from phenomena at cosmological distances, to environmental science on the human scale, through quantum mechanical processes in atomic and subatomic physics, to phenomena of the unimaginably small. MPS researchers explore the abstract ideas, concepts, and structures of mathematics as well as more tangible "stuff" – the materials used in our everyday lives. They use tools ranging from desktop instruments to synchrotron light sources, accelerators, radio and optical telescopes, and high magnetic fields. The rapid development of computational and communications capabilities is leading to the development of a new set of tools that enable new kinds of science – cyberscience.

**Social, Behavioral, & Economic Sciences (SBE):** The SBE Directorate supports the research that underlies such findings, as well as other research that builds fundamental knowledge of human behavior,

interaction, and social and economic systems, organizations and institutions. It does this through its Division of Behavioral and Cognitive Sciences (BCS) and Division of Social and Economic Sciences (SES). To improve understanding of science and engineering, SBE provides tools for tracking the human and institutional resources vital to building the nation's science and engineering infrastructure. It does this through its Division of Science Resources Statistics (SRS), which is the nation's primary source of data on the science and engineering enterprise.

## **ADDITIONAL BREAKOUT SESSIONS**

**Faculty Administrative Workload Roundtable:** The National Science Board (NSB) recently stood up a an Administrative Burdens Task Force charged with examining the administrative burden imposed on federally supported researchers at U.S. colleges, universities and non-profit institutions, and offer recommendations where appropriate on relieving the administrative workload. The Task Force is interested in hearing from the community to identify opportunities for reducing faculty administrative burden. Dr. Alan Leshner, Chief Executive Officer of the American Association for the Advancement of Science, Executive Publisher of Science, and a Member of the National Science Board will lead a discussion.

**Faculty Early Career Development (CAREER) Program:** The CAREER Program is a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of the early career-development activities of those teacher-scholars who most effectively integrate research and education within the context of the mission of their organization. Such activities should build a firm foundation for a lifetime of integrated contributions to research and education. NSF encourages submission of CAREER proposals from junior faculty at all CAREER-eligible organizations and especially encourages women, members of underrepresented minority groups, and persons with disabilities to apply.

**International Research Q&A:** The Office of International and Integrative Activities (OIIA) supports programs to expand and enhance leading-edge international research and education opportunities for U.S. scientists and engineers, especially at the early career stage. It works to build and strengthen effective institutional partnerships throughout the global science and engineering research and education community, and it supports international collaborations in NSF's priority research areas. The Office carries out its functions through close partnership with the NSF Directorates and through its own program activities.

**Major Research Instrumentation (MRI) and Science & Technology Centers (STC):** The Office of International and Integrative Activities (OIIA) supports the efforts and policy of the Director and the Deputy Director of the National Science Foundation to promote unity and alignment in support of the Foundation's mission. In this capacity, OIIA oversees three programmatic areas including the MRI Program; STC Program; and the Experimental Program to Stimulate Competitive Research (EPSCoR).

**NSF Policies & Procedures Q&A:** This session will include updated information about new and forthcoming policies and procedures related to proposal preparation, merit review and award management. It also presents an opportunity to raise questions not answered during the plenary sessions.

**NSF Award Cash Management Service (ACM\$) and Final Federal Financial Report (FFR) Processes:** Representatives from the Division of Financial Management (DFM) will provide an update on the status of NSF's new grant payment process, review the steps awardee institutions will follow to convert to ACM\$ during April 2013, and demo the ACM\$ payment request, adjustment, and search functions.

**NSF Post Award Monitoring & Compliance:** Staff from the Division of Institution and Award Support (DIAS) will cover the oversight and monitoring of Federal awards. Topics will include the overall federal context for oversight; stewardship of Federal funds; the "NSF Gold Standard" model for monitoring and business assistance; and compliance issues and common areas of concern.

**Research.gov:** Research.gov is NSF's grants management system that provides easy access to research-related information and grants management services in one location. There are big changes being implemented in Research.gov as NSF continues its grants system migration from FastLane to Research.gov. Beginning in March 2013, NSF will require that Principal Investigators (PIs) and Co-PIs use Research.gov to prepare and submit annual, final, and interim project reports. NSF is also

transitioning the cash request process from FastLane to Research.gov through the Award Cash Management Service (ACM\$). This new payment service will introduce the grant-by-grant method of handling award payments and associated post-award financial processes. Come to this session to learn about these and other changes.

**Science, Engineering & Education for Sustainability (SEES):** SEES is a portfolio of activities that highlights NSF's unique role in helping society address the challenge(s) of achieving sustainability. SEES activities span the entire range of scientific domains at NSF and aim to: 1) support interdisciplinary research and education that can facilitate the move towards global sustainability; 2) build linkages among existing projects and partners and add new participants in the sustainability research enterprise; and 3) develop a workforce trained in the interdisciplinary scholarship needed to understand and address the complex issues of sustainability.