

# The 21<sup>st</sup> EPSCoR



# National Conference

*Sustainability, Innovation, and EPSCoR*



JW Marriott ♦ Washington, DC  
October 19 - 21, 2009





Welcome to the  
21<sup>st</sup> National EPSCoR  
Conference



# Speakers Biographical Information



**Arden L. Bement, Jr.**, was sworn in as the 12th Director of the National Science Foundation (NSF) on November 24, 2004. He had served as Acting Director since February 22, 2004.

Dr. Bement heads the only federal agency that funds research and education in all fields of science and engineering. He directs a budget of more than \$6 billion; hundreds of programs that support roughly 200,000 scientists, engineers, educators, and students across the country; and the development of world-class facilities and infrastructure. He oversees a robust international research program in the polar regions and several international partnerships to build sophisticated research and experimental facilities.

Since the White House launch of the American Competitiveness Initiative in 2006, he has overseen numerous initiatives that strengthen the U.S. innovation base and economic position and intensify the training of the U.S. workforce to operate in a high-tech global economy. His top priorities have included increasing the size and duration of NSF funding awards; implementing electronic proposal and grant processing at NSF; developing cyberinfrastructure that advances research and education through expanded capabilities for networking, data processing and storage, modeling, and simulation; and broadening international collaborations to leverage NSF investments. He has expanded NSF's centers of excellence program to encompass dozens of science and engineering disciplines partnering with industries and educators.

He serves as a member of the U.S. National Commission for UNESCO and as the vice-chair of the Commission's Natural Sciences and Engineering Committee. He is a member of the U.S. National Academy of Engineering, a fellow of the American Academy of Arts and Sciences, and a fellow of the American Association for the Advancement of Science.

Dr. Bement is an **ex officio** member of the U.S. National Science Board, which guides NSF activities and serves as a policy advisory body to the President and Congress. He was a member of the NSB from 1989 to 1995.

Prior to his confirmation as NSF director in November 2004, Dr. Bement served as director of the National Institute of Standards and Technology of the Department of Commerce, a position he had held since December 7, 2001. At National Institute of Standards and Technology (NIST) he oversaw an annual budget of about \$773 million and an on-site research and administrative staff of 3,000 employees, complemented by a NIST-sponsored network of 2,000 locally managed manufacturing and business specialists serving smaller manufacturers across the United States.

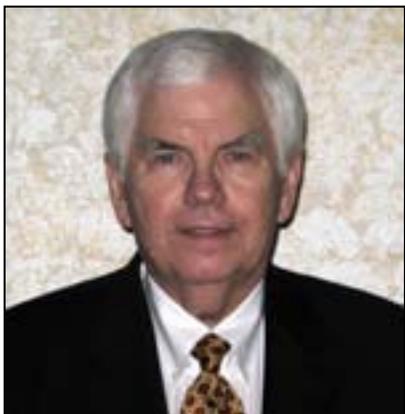
He joined NIST from Purdue University, where he was the David A. Ross Distinguished Professor of Nuclear Engineering and head of the School of Nuclear Engineering. He has held appointments at Purdue University in the schools of Nuclear Engineering, Materials

Engineering, and Electrical and Computer Engineering, as well as a courtesy appointment in the Krannert School of Management. He was director of the Midwest Superconductivity Consortium and the Consortium for the Intelligent Management of the Electrical Power Grid.

Dr. Bement joined the Purdue faculty in 1992 after a 39-year career in industry, government and academia. His positions included: vice president of technical resources and of science and technology for TRW Inc. (1980-1992); deputy under secretary of defense for research and engineering (1979-1980); director, Office of Materials Science, DARPA (1976-1979); professor of nuclear materials, MIT (1970-1976); manager, Fuels and Materials Department and the Metallurgy Research Department, Battelle Northwest Laboratories (1965-1970); and senior research associate, General Electric Co. (1954-1965). He has also been a director of Keithley Instruments Inc. and the Lord Corp. and a member of the Science and Technology Advisory Committee for the Howmet Corp., a division of ALCOA.

He has earned numerous awards and served in diverse government advisory roles, including: head of the NIST Visiting Committee on Advanced Technology; head of the advisory committee for NIST's Advanced Technology Program; member of the Board of Overseers for the Malcolm Baldrige National Quality Award; chair of the Commission for Engineering and Technical Studies and the National Materials Advisory Board of the National Research Council; and member of the Space Station Utilization Advisory Subcommittee and the Commercialization and Technology Advisory Committee for NASA. He has consulted for the Department of Energy's Argonne National Laboratory and the Idaho National Engineering and Environmental Laboratory.

Dr. Bement holds an engineer of metallurgy degree from the Colorado School of Mines, a master's degree in metallurgical engineering from the University of Idaho, a doctorate in metallurgical engineering from the University of Michigan, and honorary doctorates from Cleveland State University, Case Western Reserve University, and the Colorado School of Mines, as well as a Chinese Academy of Sciences Graduate School Honorary Professorship. He is a retired Lieutenant Colonel of the U.S. Army Corps of Engineers, and a recipient of the Distinguished Service Medal of the Department of Defense.



**Henry N. Blount** is the Director of the Office that administers the National Science Foundation's Experimental Program to Stimulate Competitive Research (EPSCoR). EPSCoR is a program designed to fulfill the NSF's mandate to promote scientific progress nationwide. The EPSCoR program directs its resources at those states that have historically received lesser amounts of NSF Research and Development (R&D) funding. Through this program, NSF establishes partnerships with government, higher education and industry that are designed to effect lasting

improvements in a state's or region's research infrastructure, R&D capacity and hence, its national R&D competitiveness.

Prior to being named Director of the EPSCoR Office, Dr. Blount served as Head of the Office of Multidisciplinary Activities in NSF's Directorate for Mathematical and Physical Sciences; Acting Executive Officer for the Division of Chemistry; Director of Program Operations in the Research Facilities Office, Office of the Director; Head of the Chemistry Division's Office of Special Projects; and Program Director for Analytical and Surface Chemistry

Dr. Blount received the B.S. in Chemistry from the University of North Carolina and the Ph.D. in Chemistry from the University of Georgia. He was a Research Associate and Teaching Fellow in Chemistry at Case Western Reserve University. From 1970 until 1984 Blount was a member of the faculty of the University of Delaware. He was Visiting Professor of Chemistry at the University of Guelph in 1978-79 and served the National Science Foundation as Program Director for Chemical Analysis in 1981-82. In 1984 Dr. Blount moved from his position as Professor and Director of Graduate Studies in Chemistry at the University of Delaware to the Foundation as Program Director for Chemical Analysis. His research has focused on mechanistic electrochemistry, bioelectrochemistry, and applications of information theory to chemical analysis.



**Stephen Borleske** serves as the State EPSCoR Director and a consultant to Delaware Biotechnology Institute (DBI). Prior to the EPSCoR role, he served as an Associate Director for DBI and was involved in both the development and implementation of the strategic plan for the Institute. Dr. Borleske retired from the DuPont company in 2004 after 32 years of service; while with DuPont he had a wide range of roles in basic and applied research and strategic business planning focused on the development of new products, new markets and new businesses in advanced materials.

In 1991, he served as a congressional fellow to the U.S. House of Representatives Science Committee working on Technology Policy. He served as the chairman of the Council of Science and Technology for the state of Delaware and was instrumental in creating the state's Advanced Technology Center program. He served on the Executive Board for the Delaware Manufacturing Extension Partnership and was the chairman of the Advisory Board for Fraunhofer Center-Delaware. Dr. Borleske has a Ph.D. in organic chemistry from Duke University.



**James R. Bottum** is the Chief Information Officer and Vice Provost for Computing & Information Technology at Clemson University. Mr. Bottum sees information technology as critically important to all facets of a top university, including education, research and service. At Clemson University, Jim leads efforts focusing on high performance computing and communication as well as collaborating with state and national governmental entities. During his tenure, ComputerWorld named him one of the Premiere 100 IT Leaders (2007) and Storage Magazine featured him on the cover in the January, 2008 edition. Under his leadership Clemson University's Palmetto Cluster (HPC) has appeared at #60 in the world's Top 500 Computing Sites (top500.org) alongside Clemson's Computational Center for Mobility Systems (CU-CCMS), ranked at #100 (November, 2008).

Prior to coming to Clemson, Mr. Bottum was the first CIO and VP for Computing at Purdue, where he was responsible for planning and coordinating all computing and information systems across the university. He had direct oversight of the university's central IT organization, Information Technology at Purdue, known as ITaP (pronounced eye-TAP). Under Mr. Bottum's leadership, ITaP was recognized nationally for innovative uses of information technology to improve teaching and learning, including classroom response systems, technology classroom sites and podcasting as a centralized service. In the fall of 2005, these innovative approaches were recognized by "Newsweek" and with a cover story in the "Chronicle of Higher Education." Mr. Bottum has also had experience as executive director for the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign.

Mr. Bottum currently serves on the NSF Advisory Committee for Cyberinfrastructure (ACCI), the NSF Advisory Committee for CRPA Assessment (AC/GPA), and the Internet 2 (I2) Board of Trustees. In the past, he has served on other NSF Committees as well as national laboratory boards, Educause working groups and other higher education committees and consortiums. He has provided consulting services for major universities across the US and is frequently an invited keynote presenter at state, regional and national conferences regarding cyberinfrastructure and high performance computing.

Mr. Bottum received his B.A. in Political Science and a Professional Certification in Urban and Regional Planning from Florida State University in 1976.



**Philip Boudjouk** was named North Dakota State University's (NDSU) first Vice President for Research, Creative Activities and Technology Transfer in March 2000 by President Joseph Chapman. Dr. Boudjouk has been active as a teacher, researcher, and member of the NDSU Department of Chemistry faculty since 1973. He earned his bachelor's degree at St. John's University, Jamaica, N.Y., and his doctorate in chemistry from the University of Wisconsin-Madison. Prior to his appointment at NDSU, he held a Teaching and Research Fellowship at the University of California at Davis for two years. During his tenure as Vice President, research expenditures at NDSU have increased from \$44 million to \$115 million.

From 1992-2000, Dr. Boudjouk served as Project Director for the North Dakota Experimental Program to Stimulate Competitive Research (ND EPSCoR). The ND EPSCoR program is widely recognized for its success in promoting and administering millions of dollars in federal contracts with research faculty throughout the North Dakota University System.

He has received numerous awards for teaching and research, including being named the Chamber of Commerce Distinguished Professor (1985) and University Faculty Lecturer (1985). He received the first annual Research Award from the College of Science and Mathematics (1992) and in 1998 he was named the Jordan A. Engberg Scholar, the first endowed professorship at NDSU.

Dr. Boudjouk's research career has focused on organometallic chemistry with emphases on organosilicon compounds, polymers, catalysis, materials research and sonochemistry. He has more than 130 refereed publications in international journals and holds 19 patents. He has been the thesis advisor for 20 Ph. D. students and 22 M.S. students. Dr. Boudjouk has been a guest lecturer at over 40 universities in Europe and Asia.

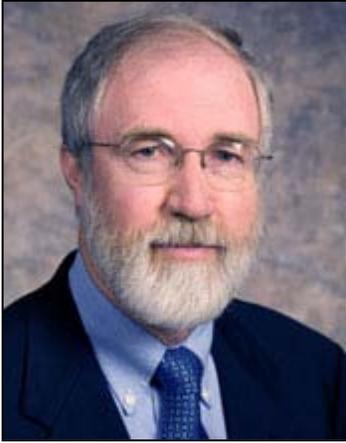


**Kristin Bowman-James** is currently Professor of Chemistry at the University of Kansas in Lawrence, Kansas and is Project Director of Kansas NSF Experimental Program to Stimulate Competitive Research (EPSCoR). She has been at the University of Kansas for 31 years and is currently teaching, doing chemical research, directing her post-docs and graduate students, and administrating the Kansas EPSCoR program. She also serves on a number of administrative panels and encourages women faculty members.

Dr. Bowman-James is a co-editor of the first book devoted exclusively to anion chemistry, **Supramolecular Chemistry of Anions**, published by Wiley-VCH. She reports that she does not count her publications because the number is constantly changing.

Dr. Bowman-James has been active in the American Chemical Society and served in many roles at the local and national level. Some of her positions on the national level have included serving as Membership Chair, Secretary of the Inorganic Division, and her current position as an associate of the Women Chemists Committee. She has also served on the Advisory Board of the Committee for the Advancement of Women Chemists (COACH), and is a lifetime member of Iota Sigma Pi.

Dr. Bowman-James received her undergraduate and Ph.D. degrees from Temple University. Dr. Bowman-James' research is in the field of supramolecular chemistry, particularly involving synthetic macrocycles as ligands for both transition metals and anions. She is especially recognized for contributions to the field of anion coordination chemistry, which is involved with the design, synthesis, and characterization of receptors for anionic species.



**James P. Collins** received his B.S. from Manhattan College in 1969 and his Ph.D. from The University of Michigan in 1975. He then moved to Arizona State University where he is currently Virginia M. Ullman Professor of Natural History and the Environment in the School of Life Sciences. From 1989 to 2002 he was Chairman of the Zoology, then Biology Department. At the National Science Foundation (NSF) Dr. Collins was Director of the Population Biology and Physiological Ecology program from 1985 to 1986, and Assistant Director for Biological Sciences from 2005 to 2009. NSF is the U.S. government's only agency dedicated to supporting basic research and education in all fields of science and engineering at all levels. Collins oversaw a research and education portfolio that spanned molecular and cellular biosciences to global change as well as biological infrastructure. He coordinated collaborations between NSF and other federal agencies through the President's National Science and Technology Council where he chaired the Biotechnology Subcommittee and co-chaired the Interagency Working Group on Plant Genomics. He was also NSF's liaison to NIH.

Dr. Collins's research has centered on the causes of intraspecific variation. Amphibians are model organisms for field and laboratory studies of the ecological and evolutionary forces shaping this variation and its affect on population dynamics. A recent research focus is host-pathogen biology and its relationship to population dynamics and species extinctions. The role of pathogens in the global decline of amphibians is the model system for this research.

The intellectual and institutional factors that have shaped Ecology's development as a science are also a focus of Dr. Collins's research, as is the emerging research area of ecological ethics. Federal, state, and private institutions have supported his research.

Honors include the Pettingill Lecture in Natural History at The University of Michigan Biological Station; the Thomas Hall Lecture at Washington University, St. Louis; and serving as Kaeser Visiting Scholar at the University of Wisconsin-Madison. ASU's College of Liberal Arts and Sciences awarded him its Distinguished Faculty Award. He is a Fellow of the American Association for the Advancement of Science and a Fellow of the Association for Women in Science.

Dr. Collins has served on the editorial board of *Ecology* and *Ecological Monographs* as well as *Evolution*. He is the author of over 100 peer reviewed papers and book chapters, co-editor of three special journal issues, and co-author with Dr. Martha Crump of *Extinction in Our Times. Global Amphibian Decline* (Oxford University Press, 2009).



**Deborah Crawford** is the NSF Deputy Assistant Director for Computer and Information Science and Engineering (CISE). The Directorate for Computer and Information Science and Engineering 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.

CISE is organized in three divisions: the Division of Computing & Communication Foundations (CCF); the Division of Computer and Network Systems (CNS); and the Division of Information and Intelligent Systems (IIS). Each division is organized into a small number of clusters that are responsible for managing a portfolio of grants and proposal competitions within a broad area of research and education. While individual program directors may be designated as the point of contact for specific sub-disciplines, collaboration takes place within each cluster, across each division, and between divisions and directorates.

Dr. Crawford received her Ph.D. in Information Systems Engineering from the University of Bradford, and her B.Sc. (Hons) in Electronic and Electrical Engineering from the University of Glasgow.



**Gayle Dana** is an expert in surface water hydrology and energy balance of desert, seasonally snow-covered, and polar regions. Present research projects include 1) nutrient and sediment source assessment for Total Maximum Daily Loads (TMDL) development in the Lake Tahoe and Truckee River Watersheds; (2) hydrochemical modeling in a Lake Tahoe watershed (3) effects of fire on nutrient dynamics in forested watersheds, (4) evaporation from lakes and reservoirs in support of the Truckee River Operating Agreement, and (5) spatially distributed energy balance modeling for climate change detection in Antarctica. Dr.

Dana is the Science Advisor to the Truckee River TMDL and Watershed Council, and is a collaborator with the McMurdo Dry Valleys Long Term Ecological Research project.

Dr. Dana received her bachelor's degree in Zoology from University of California, Davis, a Masters degree in Ecology and Systematic Biology, San Francisco State University, and the Ph.D. degree in Hydrology/Hydrogeology, University of Nevada, Reno.



**Carol Davis** is a member of the Turtle Mountain Band of Chippewa. She helped establish Turtle Mountain Community College in the early 1970's and served as an administrator at the college for seventeen years. She received a doctorate in 2000 from Walden University. She currently works for North Dakota EPSCoR as the Tribal College Liaison. In that position, she is helping to create a pathway for American Indian high school students into STEM careers through STEM camps and Sunday Academies. She also supports the ND EPSCoR/Tribal College research capacity building effort at the five

North Dakota Tribal Colleges. She still resides with her husband on the Turtle Mountain Reservation where she enjoys spending time with her family, especially her twelve grandchildren.



**Michael J. Eckardt** joined the University of Maine community as Vice President for Research in August of 2003. Dr. Eckardt provided scientific expertise to the development of the current U. S. Department of Health and Human Services Strategic Plan, development of performance measures for research, and review of the Government Performance and Results Act (GPRA). From 1996 to 2003, Dr. Eckardt was head of planning and evaluation activities at the National Institute on Alcohol Abuse and Alcoholism. He was responsible for the annual preparation of materials (areas of emphasis, scientific advances and stories of discovery) used for U.S. Congressional appropriation hearings. He was also responsible for conducting needs assessments, determining priorities, developing plans and performing evaluations of the effectiveness of Institute programs and activities.

Dr. Eckardt earned his BA in biology from California State University, Northridge; MS in marine biology from the University of Southern California; MS and Candidate in Philosophy in zoology (majored in ecology and evolutionary biology) from the University of Michigan; and Ph.D. in medical psychology from the University of Oregon Health Sciences Center. He has approximately 150 scientific publications and was a tenured scientist at the National Institutes of Health from 1976 to 1996.



**Manuel Gómez** is the Director and founder of the University of Puerto Rico's (UPR) Resource Center for Science and Engineering, which has operated since 1980 with an NSF grant that has been continuously funded since then by NSF and other federal agencies. The Center's mission is to nurture and promote educational and research programs that will increase K-16+ students' learning in STEM fields and promote competitive research in Puerto Rico. He also directs the Puerto Rico Louis Stokes Alliance for Minority Participation (PR-LSAMP) project and the Puerto Rico Alliance for Graduate Education and the Professoriate (PRAGEP) program. He co-directs the Institute for Functional Nanomaterials (IFN), an NSF grant of \$13M, for a three-year period, involving 40 researchers in a strategic alliance with four National Laboratories.

He is the Chair of the Puerto Rico EPSCoR State Committee, Co-PI of the EPSCoR program, and Professor of Physics. He was the Director of the Partnerships for Innovation (PFI) and Puerto Rico Statewide Systemic Initiative (PR-SSI) projects. As the PR-SSI Director, he pioneered the K-12 systemic reform in science and mathematics in more than 800 Puerto Rico schools. As EPSCoR and PFI Director, he has worked closely with entrepreneurs and the high-tech industry to promote technology transfer, commercialization, and innovation in Puerto Rico. He was also Dean of UPR-Rio Piedras' College of Natural Sciences and the Vice President for Research and Academic Affairs of the UPR System.

In addition to his many publications and conference presentations in the fields of physics, materials science, as well as educational reform, Dr. Gomez has served on panels and advisory committees of the National Research Council (NRC), American Association for the Advancement of Science (AAAS), National Institute for Science Education (NISE), and NSF on issues dealing with the systemic reform of education. He has been active in the establishment of a science and technology policy for economic development in Puerto Rico, co-authoring the Science and Technology Policy for Economic Development that was approved by the Governor of Puerto Rico in 1996.



**Mary L. Good**, founding Dean and Donaghey Professor, is well known for her distinguished career. She has held many high-level positions in academia, industry, and government. The 143,000-member American Association for the Advancement of Science (AAAS) elected Dr. Good to serve as the president, following Dr. Stephen Jay Gould. In 2004, Dr. Good was the recipient of the National Science Foundation's highest honor, the Vannevar Bush Award. She was also the first female winner of the AAAS's prestigious Philip Hogue Abelson prize for outstanding achievements in education, research and development management, and public service, spanning the

academic, industrial, and government sectors. Two of her more than 27 awards include the National Science Foundation Distinguished Service Medal and the esteemed American Chemical Society Priestly Medal. She is also the 6th Annual Heinz Award Winner.

During the terms of Presidents Carter and Reagan, Dr. Good served on the National Science Board and chaired it from 1988-1991. She was the Undersecretary for Technology in the U.S. Department of Commerce and Technology during President Clinton's first term. This agency assists American industry to advance productivity, technology, and innovation in order to make U.S. companies more competitive in the global market.

Dr. Good has received 21 honorary degrees. Her undergraduate degree in chemistry is from the University of Central Arkansas. She earned her doctoral degree in inorganic chemistry from the University of Arkansas, Fayetteville, at age 24. Dr. Good spent 25 years teaching and researching at Louisiana State University and the University of New Orleans before becoming a guiding force in research and development for Allied Signal. Dr. Good was voted one of Arkansas' Top 100 Women by Arkansas Business.

Dr. Good received her bachelor's degree in Chemistry from the University of Central Arkansas and her Masters and Ph.D. degrees in Inorganic Chemistry from the University of Arkansas at Fayetteville.



**W. Lance Haworth** works in partnership with NSF's six scientific directorates and other major offices to develop and promote a performance-based approach to the foundation's management of its investment portfolio. The job requires him to coordinate the foundation's traditional mission of funding transformative science while encouraging support for new initiatives set forth by NSF leadership. The Office of Integrative Activities manages several high-profile programs, including Science and Technology Centers, Major Research Instrumentation, and the Experimental Program to Stimulate Competitive Research (EPSCoR), which exists to strengthen research and education in science and engineering throughout the United States.

Prior to this assignment, Dr. Haworth led the Office of Multidisciplinary Activities in the Directorate for Mathematical and Physical Sciences at NSF. He joined NSF's Division of Materials Research in 1984. He served as the first program director for Materials Research Groups, then for Materials Research Laboratories, and led planning and implementation for the Materials Research Science and Engineering Centers Program launched in 1994. He was executive officer for the Division of Materials Research from 1996-2006, and acting division director from 2006-2007.

Dr. Haworth was educated at Liverpool University, the University of Alberta, and Yale University. He was a postdoctoral research associate in metallurgy at the University of Illinois, and a faculty member in metallurgical engineering and materials science at Wayne State University from 1972-1985. He was a visiting scientist and then vice president with Central Solar Energy Research Corporation in Detroit, Mich., from 1977 to 1979. His research activities focused on fatigue damage mechanisms, structure-property relationships in materials and nondestructive evaluation.



**Paul Hill** is the vice chancellor for science and research at the West Virginia Higher Education Policy Commission. He also serves as executive director of the West Virginia Experimental Program to Stimulate Competitive Research (WVEPSCoR), a state affiliate program of the National Science Foundation (NSF), and manages a number of competitive research programs with academic institutions throughout the state.

Dr. Hill has more than 25 years experience in research, grant administration, public policy and management, and has held CEO positions in state, federal and private organizations.

Before joining WVEPSCoR in 2001, he was chairman and CEO of the United States Chemical Safety Board, appointed by President Bill Clinton and twice confirmed by the U.S. Senate. He became vice chancellor of the West Virginia higher education system's Division of Science and Research in 2007.

Dr. Hill is active in numerous state and federal committees, boards and commissions, including the West Virginia Commission on International Education; national EPSCoR/IDeA Foundation (chairman); Mid-Atlantic Technology, Research, and Innovation Center (MATRIC); Hawaii EPSCoR State Committee; Hawaii EPSCoR Monitoring and Assessment Panel (past chairman); A Vision Shared-West Virginia Technology-Based Economic Development (TBED) Council; Marshall University Research Corporation; West Virginia Commission on Science, Technology, Engineering and Mathematics Graduate Education; and West Virginia University College of Engineering Visiting Committee.

He also serves as chairman of the EPSCoR Council of State Program Directors, representing 27 states and jurisdictions. He has been a U.S. delegate to the Organization for Economic and Community Development in Europe and served on both the New York City Environmental Protection Council and the U.S. EPA's Council for Implementation of the Clean Air Act. He is a member of the American Association for the Advancement of Science (AAAS), the Association of University Technology Managers (AUTM) and the Coalition on the Public Understanding of Science (COPUS).

A native West Virginian, Dr. Hill holds degrees from Marshall University (B.S. and M.S.) and the University of Louisville (Ph.D.) in biology and chemistry. He studied at the University of Louisville's Systems Science Institute, where his research emphasis was environmental chemistry and ecological systems.



**Timothy L. Killeen** came to NSF under an Intergovernmental Personnel Act (IPA) assignment in July 2008 as Assistant Director for Geosciences. Prior to NSF, Killeen was Director of the National Center for Atmospheric Research (NCAR) for eight years, and remains as a Senior Scientist in NCAR's High Altitude Observatory, where his research interests include the experimental and theoretical study of the Earth's upper atmosphere. He came to NCAR from the University of Michigan where he was Professor of Atmospheric and Space. During his tenure at Michigan, he also held positions as Director of the University of Michigan's Space Physics

Research Laboratory and Associate Vice President for Research.

Killeen is Past President of the American Geophysical Union (AGU), a Fellow of the American Meteorological Society (AMS), a former AMS Councilor, and a member of the National Academy of Engineering. Killeen has served as President of the Space Physics Section of the American Geophysical Union, and on numerous NASA, NSF, AGU and university committees. He served as co-chair of the NASA Sun-Solar System Connection Strategic Roadmap Committee, and is a past Editor-in-Chief of the *Journal of Atmospheric and Solar-Terrestrial Physics*.

Dr. Killeen received a Bachelor's degree in Physics and a Ph.D. in Atomic and Molecular Physics from the University College, London.



**Sally A. Mackenzie** is the Ralph and Alice Raikes Professor of Plant Science at the University of Nebraska. She serves as Founding Director of the Center for Plant Science Innovation, an interdisciplinary research center focused on agricultural biotechnology. Dr. Mackenzie's research focuses in the area of plant mitochondrial biology, investigating the influence of environmental change on cellular signaling in the plant as well as the evolution of plant mitochondria. Her laboratory receives funding from the National Science Foundation, the Department of Energy, and USDA.

Dr. Mackenzie received the B.S. degree in Botany from the University of California, Davis, and the Ph.D. degree in Plant Genetics from the University of Florida. She was a postdoctoral research associate with Dr. Chris Chase at the University of Florida from 1986 to 1988, when she took the position of Assistant Professor at Purdue University. Dr. Mackenzie served on the faculty of Purdue University for eleven years, moving to University of Nebraska in 1999.



**Roger R. Markwald** is a distinguished university professor and also the Medical University of South Carolina (MUSC) Cardiovascular Developmental Biology Center director.

Dr. Markwald began his graduate research career with an interest in the male reproductive system but soon focused his attention on the developing heart that became his lifelong passion. Early studies focused on the role and ultra structure of a unique extra cellular matrix referred to as cardiac jelly. It is the epithelial/mesenchymal interaction of endocardial cells within this matrix that enables the heart to form valves and septa.

In recent years, his efforts were focused on identifying the molecular factors responsible for these interactions. As a natural outgrowth of his broad interests in developmental biology, he incorporated research on tissue engineering and regenerative medicine involving the use of stem cells to see if they have any promise in the treatment of cardiac disease.

Among Dr. Markwald's numerous other awards, he received the S.C. Governor's Award for Excellence in Science, the MERIT award from National Heart, Lung & Blood Institute, the National Institutes of Health Research Career Development Award, and the American Heart Association (Texas Affiliate)—Lyndon B. Johnson Research Award. He also completed a 10- year stint as The Anatomical Record's editor-in-chief, and serves on the editorial boards of Tissue and Cell Research, Circulation Research and the journal, Epithelium. His outstanding teaching accomplishments number 14 recognitions and include the MUSC Golden Apple award.

Dr. Markwald completed his undergraduate degree in biology and chemistry at California Polytechnic Institute and then received both his master's and doctorate degrees from Colorado State University.



**Stephen D. Nelson** is Associate Director of Science and Policy Programs at the American Association for the Advancement of Science (AAAS). In this role he assists the Director in overall operations of the directorate; acts as senior advisor to the R&D Budget and Policy Program and the AAAS Science and Engineering Fellowship Program (details of each given below); organizes the annual AAAS Colloquium on Science and Technology Policy; and serves as staff officer to AAAS's Committee on Science, Engineering and Public Policy, as well as staff officer for both the AAAS Philip Hauge Abelson Prize and the William D. Carey Lectureship. In addition, he has responsibility for portions of the direct assistance program within the AAAS Research Competitiveness Service.

From 1990 to 1999 he was Program Director of AAAS's Science, Technology and Government Program in the SPP Directorate. Within that overall role, he managed the R&D Budget and Policy Program (including organizing the annual AAAS Colloquium on Science and Technology Policy, and publishing at least 3 volumes per year on federal research and development funding and related science and technology policy issues); and directed the AAAS Science and Engineering Fellowship programs (Congressional; Diplomacy; Overseas Diplomacy; Technology Policy; Risk Policy; Defense Policy; Revelle/Global Stewardship; and Environmental), as well as carrying out numerous other responsibilities. Nelson has co-authored or co-edited 42 volumes published by AAAS on federal funding for research and development and other issues in science and technology policy. From 1984 to 1990 he was Manager of Science Policy Studies at AAAS.

Prior to joining AAAS, Nelson was Senior Professional Associate at the Institute of Medicine, National Academy of Sciences, working on a study of the organizational structure of the National Institutes of Health. He also served for six years as Administrative Officer for Science and Technology Policy at the American Psychological Association. Before coming to Washington, DC in 1977, Nelson was Project Director at the Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, University of Michigan. He also taught in both the psychology and sociology departments at Michigan.

Dr. Nelson received his B.A. in psychology from Kansas State University, and his Ph.D. in social psychology from the University of Michigan.



**Jeff Nesbit** is the director of the Office of Legislative and Public Affairs (OLPA). OLPA communicates information about the activities, programs, research results and policies of the National Science Foundation (NSF). OLPA employs a wide variety of tools and techniques to engage the general public and selected audiences including Congress, the news media, state and local governments, other Federal agencies, and the research and education communities.

Mr. Nesbit oversees the agency's communication activities with the public, Congress, the news media, states and governors and various scientific, engineering and education organizations. He began his duties at NSF on June 12, 2006.

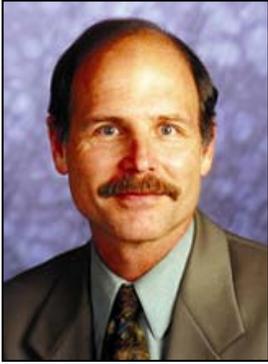
Prior to forming his own communications consulting business in 1992, Mr. Nesbit was the Director of Communications to former Vice President Dan Quayle at the White House; Associate Commissioner for Public Affairs at the Food and Drug Administration for David Kessler, M.D.; a U.S. Senate press secretary and a national journalist with media organizations such as Knight-Ridder Newspapers. In addition, Nesbit is the author of 17 novels for children and adults.



**Willie Pearson, Jr.** is a Professor in the School of History, Technology, and Society, Georgia Institute of Technology. Prior to joining the faculty at Georgia Tech in July 2001, he held a distinguished appointment as Wake Forest Professor of Sociology at Wake Forest University and Adjunct in Medical Education at Wake Forest University School of Medicine. In 1993, he received Southern Illinois University's College of Liberal Arts' Alumni Achievement Award. In 1999, Dr. Pearson was selected as one of Quality Education for Minorities in Mathematics, Science, and Engineering (QEM/MSE) Network's Giants in Science. In 2001, he was elected a National Associate (life-time appointment) of the National Academy of Sciences. He has held postdoctoral fellowships at the Educational Testing Services (ETS) and the Office of Technology Assessment (OTA), Congress of the United States.

Dr. Pearson serves or has served on committees, advisory boards and panels at the National Institutes of Health, National Science Foundation, American Chemical Society, American Association for the Advancement of Science, Burroughs Wellcome Fund, Graduate Records Examination Board, Sloan Foundation, American Sociological Association, Sigma XI and the National Research Council. He was elected president of the Mid-South Sociological Association (1987); a member of the Executive Council, American Sociological Association's Section on Science, Knowledge and Technology (1989-91); and a Governor of the National Conferences on Undergraduate Research (1994-2000). Dr. Pearson's most recent project is a co-edited volume (with Michael Teitelbaum, Sloan Foundation) on changing the face and practice of science and engineering. He has successfully mentored numerous undergraduate students (over 95 percent have advanced degrees). Dr. Pearson has always valued teaching, research and community service. During his career, he has been the recipient of community service, teaching and research awards. Dr. Pearson has served on advisory boards, board of directors and/or committees for the Winston-Salem Urban League, Family Services, Inc. (Winston-Salem, North Carolina), Forsyth Futures, (appointed by the Forsyth County, North Carolina County Commissioners), and Maya Angelou Institute, Winston-Salem State University. Additionally, he served as Co-chair of the Review and Comment Committee of the Forsyth County Juvenile Justice Council.

Dr. Pearson received his Ph.D. in sociology from Southern Illinois University at Carbondale in 1981.



**Thomas W. Peterson** is the assistant director in the Directorate for Engineering at the National Science Foundation. Dr. Peterson was the head of chemical and environmental engineering at The University of Arizona from 1990-98, and led the merger of those two programs. During that time period, his department was home to the first Engineering Research Center in Arizona, supported jointly by NSF and the Semiconductor Research Corporation and focusing on environmentally benign semiconductor manufacturing.

As dean of Arizona's engineering college, Dr. Peterson has initiated or continued the support of a number of collaborative programs between engineering and other colleges on campus. These collaborations include undergraduate programs in optical science and engineering, engineering management and biosystems engineering (with the colleges of Optics, Management and Agriculture, respectively) and graduate programs in biomedical engineering and the management of technology (with Medicine and Management).

Dr. Peterson is currently the vice chair of the Engineering Deans Council of the American Society for Engineering Education. He was one of the founding members of the Global Engineering Deans Council and has made global education experiences a high priority for engineering students at Arizona. He came to Arizona as an assistant professor in 1977.

NSF's engineering directorate provides critical support for the nation's engineering research activities and is a driving force behind the training and development of the United States engineering workforce. With a budget of approximately \$640 million, the directorate supports fundamental research, the creation of cutting edge facilities and tools, broad interdisciplinary collaborations, and through its centers and Small Business Innovation Research program, enhances the competitiveness of U.S. companies.

Dr. Peterson holds three degrees in chemical engineering: a bachelor of science degree from Tufts University, a master of science degree from Arizona, and a doctorate from Caltech.



**Paul G. Risser** is the chair and chief operating officer of the University of Oklahoma Research Cabinet and coordinates and facilitates research across the University's three campuses. Previously Dr. Risser was the chief executive officer (Chancellor) for The Oklahoma State System of Higher Education, a state system comprised of 25 state colleges and universities. Before assuming the Oklahoma Chancellor position, Dr. Risser was President of Oregon State University, where he led the university to record enrollment and impressive research growth over a seven-year span. His professional background also includes serving as President of Miami University, Oxford, Ohio; Provost and Vice President for Academic Affairs and Vice President for Research at the University of New Mexico; and Chief of the Illinois Natural History Survey.

Dr. Risser's professional background has roots in Oklahoma, where he served as a faculty member from 1967-81 at the University of Oklahoma. He joined the OU faculty as assistant professor of botany and 10 years later was promoted to full professor and chair of OU's Department of Botany and Microbiology.

He has also held teaching positions at the University of New Mexico; Miami University and Oregon State University. He has served as Program Director of Ecosystem Studies for the National Science Foundation and as president of three professional organizations: the American Institute of Biological Sciences, the Ecological Society of America and the Association of Southwestern Naturalists.

Dr. Risser has a Ph.D. in botany and soils and a master's degree in botany from the University of Wisconsin and a bachelor's degree in biology from Grinnell College.



**Terrence R. Russell's** current research interests center on international comparative indicators for the science, engineering and technology labor force, focused on participation of underserved groups. From 1991 to 2008 he served as Executive Director, the Association for Institutional Research), an international association devoted to providing professional development and technical assistance in the areas of management research, policy analysis and planning in higher education. , and as Courtesy Professor and member of the graduate faculty, Higher Education and Policy Studies, Department of Educational

Leadership, Florida State University. Prior to that he was Manager of the American Chemical Society's Office of Professional Services and Visiting Associate Professor of Sociology at Georgetown University.

His other professional activities include: External Evaluator, South Carolina Research Authority EPSCoR project (February 2009- present); Research and Policy Consultant, American Association for the Advancement of Science (AAAS) Center for Advancing Science & Engineering Capacity (December 2008 - present); 2007 Academic Leadership Award. "For exemplary contributions to American higher education." Council of Independent Colleges (CIC), Washington DC (November, 2007); Distinguished Professor, Huazhong University of Science and Technology, Wuhan, China (October, 2004); National Advisory Board, American Council on Education - UCLA Cooperative Institutional Research Program (CIRP) (2002-2004); National Academy of Sciences Study Committee, Assessing 30 years of NIH Minority Biomedical Research Training Programs (2001- 2005) Evaluation Team, NIH-funded Leadership Alliance summer research experience program for minority undergraduate biomedical science and engineering students, (2000-2005); Technical Advisory Committee for the National Survey of Postsecondary Faculty, National Center for Educational Statistics (1991- 2007); Advisory Committee on Science and Mathematics Education Indicators, Directorate for Education and Human Resources, National Science Foundation (1994-98); Evaluation Team, National Science Linkages in the Community Program (Project SLIC) a national community-based science education program aimed at grades K-9. American Association for the Advancement of Science and the DeWitt Wallace-Reader's Digest Fund (1995-96); Committee on NASA Education Program Outcomes, National Research Council (1993-94) Committee charged with developing outcome indicators for NASA's education programming. Co-author of graduate education section (1993-94); Steering Committee, National Forum on Graduate Student Support, National Research Council (1993-94); Final review panel and human resources panel, U.S. Department of Energy Experimental Program to Stimulate Competitive Research (EPSCoR), an initiative to strengthen energy-related research, human resources development, and systemic science education in targeted states (1993, 1994).

Dr. Russell received his B.A. in psychology, M.S. in community organizing / evaluation, and his Ph.D. in sociology of science / social and organizational theory from Southern Illinois University, Carbondale, Illinois.



**Edward Seidel** is the Acting Assistant Director for the Mathematical and Physical Sciences (MPS) Directorate. Prior to his appointment in MPS, Dr. Seidel served as Director of the Office of Cyberinfrastructure, and holds a position as Floating Point Systems Professor at the Louisiana State University (LSU) Departments of Physics and Astronomy and Computer Science and Director of the LSU Center for Computation and Technology, or CCT.

NSF's Office of Cyberinfrastructure coordinates and supports the acquisition, development and provision of state-of-the-art cyberinfrastructure resources, tools and services essential to the conduct of 21st-century science and engineering research and education. The office supports cyberinfrastructure resources, tools and related services such as supercomputers, high-capacity mass-storage systems, system software suites and programming environments, scalable interactive visualization tools, productivity software libraries and tools, large-scale data repositories and digitized scientific data management systems, networks of various reach and granularity and an array of software tools and services that hide the complexities and heterogeneity of contemporary cyberinfrastructure while seeking to provide ubiquitous access and enhanced usability.

Dr. Seidel's scientific career has focused on solving Albert Einstein's equations of general relativity, pioneering techniques and algorithms especially for simulating black hole collisions and gravitational waves on supercomputers. Seidel and collaborators also developed software approaches needed to solve the general relativity equations, which led to development of more general toolkits to attack complex problems from other disciplines using advanced computing environments.

Seidel earned his doctorate from Yale University in relativistic astrophysics. In addition to his work at LSU and the Max-Planck Institute, Seidel was a senior research scientist at the National Center for Supercomputing Applications and associate professor in the Physics Department at the University of Illinois, Urbana-Champaign.



**Judith S. Sunley** is the Deputy Assistant Director and Acting Assistant Director for the Social, Behavioral and Economic Sciences Directorate (SBE) at the National Science Foundation (NSF). She has served at NSF since 1980 in a variety of positions ranging from program officer through division director in the Division of Mathematical Sciences, executive officer in the Mathematical and Physical Sciences Directorate, senior advisor in the Office of the Director, and interim assistant director in the Education and Human Resources Directorate. Before coming to NSF, Dr. Sunley held positions as faculty member, Department Chair, and Associate Dean at American University.

Dr. Sunley received her Ph.D. degree from the University of Maryland and M.S. and B.S. degrees from the University of Michigan, all in mathematics.



**Judith Van Houten** is a University of Vermont (UVM) Distinguished Professor, a life time appointment. She has a long record of administration and mentoring, including service as Director of the Cell and Molecular Biology Graduate Program for 6 years, Associate Dean of the College of Arts and Sciences for 5 years, Chair of Biology from 1995-2005. She served as Associate project director of VT EPSCoR from 1996 –2005, and as Associate Director for research 1991- 1996. Dr. Van Houten has a record of extramural funding from NIH and NSF. She has received a 7-year Pepper award from National Institute on Deafness

and Other Communication Disorders and the Manheimer Award for career achievements in Chemosensory Sciences. UVM has recognized her as a University Scholar and the George H. Perkins Professor, and Vermont Women in Higher Education, member of the Vermont Academy of Science and Engineering, the Jackie M. Gribbons Leadership Award and in 2009, she became a University Distinguished Professor (UDP). This is the University's highest honor that is limited to 10 awardees at any time. She is well regarded in her field, has been elected to offices, including President, in the Association for Chemoreception Sciences, and serves on editorial boards. She is familiar with federal funding mechanisms at NSF and NIH, has served for 6 years on the Centers for Medicare & Medicaid Services (CMS) study section (2 years as chair) and is currently a member of Cellular and Molecular Biology of the Kidney (CMBK) study section. Dr. Van Houten has a deep interest in baccalaureate and high school science education and has received Howard Hughes Medical Institute grant for undergraduate science education and research. She was the director of a UVM undergraduate research program for 14 years. In addition to directing the NSF EPSCoR grant in Vermont, Dr. Van Houten is the PI of an NSF Cyber infrastructure proposal from a consortium of 5 IDeA states and the PI of the Vermont INBRE.

Dr. Houten received her Ph.D. in 1977 from the University of California, Santa Barbara. She was a postdoctoral fellow at NIH from 1977 to 1979, at the University of British Columbia. After holding a visiting assistant professorship for two years at the University of Iowa, she came to UVM, where she has been a full professor in the College of Arts and Sciences since 1992.





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