Dear Colleagues,

On behalf of the AAAS Board of Directors, it is my distinct honor to invite you to the 176th Meeting of the American Association for the Advancement of Science (AAAS).

The AAAS Annual Meeting has become the most important gathering of the year for the growing segment of scientists and engineers who seek to explore the intersections between disciplines and witness the broad influence of science and technology on society. You will have the opportunity to interact with an exceptional array of scientists, engineers, educators, and policy-makers who will present the latest thinking and developments in the areas of science, technology, engineering, education, and policy-making.

The relevance of science, technology, and engineering as well as scientific literacy to the well-being of society is more profound than ever. The theme of the 2010 AAAS Annual Meeting — Bridging Science and Society — calls on all scientists and engineers to make their work both beneficial and understandable, and on society to discover again the excitement and hope that research and its findings offer. It is a call to action that resonates around the world.

Everyone is welcome at the AAAS Annual Meeting. Those who join us will have the opportunity to choose among a broad range of activities, including plenary and topical lectures by some of the world’s leading scientists and engineers, multidisciplinary symposia, cutting-edge seminars, career development workshops, an international exhibition, and a host of networking opportunities.

The Annual Meeting reflects contributions from the AAAS sections, which I gratefully acknowledge. I also extend a personal thanks to the Scientific Program Committee for assembling this outstanding meeting and to our local co-chairs, Marye Anne Fox, chancellor, University of California, San Diego, and Irwin Jacobs, co-founder, Qualcomm Inc.

I look forward to seeing you in San Diego,

Dr. Peter Agre, AAAS President and Director, Malaria Research Institute, Johns Hopkins Bloomberg School of Public Health
President’s Address

Peter C. Agre, M.D.
AAAS President, and Director, Malaria Research Institute, Johns Hopkins Bloomberg School of Public Health

Agre shared the 2003 Nobel Prize in Chemistry with Roderick MacKinnon of Rockefeller University for the discovery of aquaporins, the key proteins that transport water across cell membranes.

Not long after receiving the Nobel Prize, Agre began working to extend his studies of aquaporins to malaria, addressing the question of whether or not aquaporins could be exploited as a means of treating or preventing the disease. Initial results led his laboratory to focus on malaria as its primary area of study. As director of the Malaria Research Center, he oversees 19 Hopkins faculty members who concentrate on advancing basic science to develop new methods in malaria prevention and treatment. Agre is a member of the National Academy of Sciences (NAS), chair of the NAS Committee on Human Rights, and a Fellow of AAAS and the American Academy of Arts and Sciences. He received his B.A. degree in chemistry from Augsburg College and his M.D. degree from Johns Hopkins University.

President’s Reception: Immediately following

Plenary Speakers

Carol W. Greider, Ph.D.
Daniel Nathans Professor and Director, Department of Molecular Biology and Genetics, and Professor of Oncology, Johns Hopkins University School of Medicine, Baltimore, MD

Greider, one of the world’s pioneering researchers on the structure of telomeres, was awarded the 2009 Nobel Prize in physiology or medicine by the Royal Swedish Academy of Sciences along with Elizabeth Blackburn and Jack W. Szostak. While a 23-year-old graduate student at the University of California, Berkeley, working together with Blackburn, Greider discovered the enzyme telomerase and later, in her own lab, she cloned its RNA component. This work laid the foundation for studies that have linked telomerase and telomeres to human cancer and age-related degenerative disease. It represents another example of curiosity-driven basic research that has direct medical implications. Greider obtained her Ph.D. degree in molecular biology from UC Berkeley in 1987. She then went to Cold Spring Harbor Laboratory where she ran a lab for 10 years studying telomerase. In 1997 she joined the department of molecular biology and genetics at Johns Hopkins University School of Medicine in Baltimore. Greider grew up in Davis, Calif., where her father was a physicist at the University of California. She credits her father for encouraging her to pursue what most excited her.

Eric S. Lander, Ph.D.
Director, The Broad Institute of MIT and Harvard University, and Co-Chair, President’s Council of Advisors on Science and Technology (PCAST)
Science and Technology in the First Year of the New Administration

Lander is widely known as one of the driving forces behind today’s revolution in genomics, the study of all of the genes in an organism and how they function together in health and disease. He also is co-chair of President Obama’s council of science and technology advisers. PCAST is an advisory group of the nation’s leading scientists and engineers who directly advise the President and make policy recommendations in the many areas where understanding of science, technology, and innovation is key to strengthening the economy and forming policy. Lander also was one of the principal leaders of the Human Genome Project and is a member of both the National Academy of Sciences and Institute of Medicine. He is also an AAAS Fellow. Lander earned his B.A. degree in mathematics from Princeton University and Ph.D. degree in mathematics from Oxford University as a Rhodes Scholar. He also was an assistant and associate professor of managerial economics at the Harvard Business School.

Marcia McNutt, Ph.D.
Director, U.S. Geological Survey, and Science Adviser to the Secretary, U.S. Department of the Interior (invited)
Title To Be Determined

McNutt’s appointment in 2009 marked a milestone for USGS -- she is the first female director in the agency’s 130-year history. She directs a multi-disciplinary organization that focuses on biology, geography, geology, geospatial information, and water, and is dedicated to studying the landscape, natural resources, and natural hazards. Most recently she served as president and chief executive officer of the Monterey Bay Aquarium Research Institute. Her biography includes a broad range of research interests and numerous honors and awards. She has participated in 15 major oceanographic expeditions and served as chief scientist on more than half of them. Her research has ranged from studies of ocean island volcanism in French Polynesia to continental break-up in the Western United States to uplift of the Tibet Plateau. McNutt studied geophysics at the Scripps Institution of Oceanography and earned her Ph.D. degree there in earth sciences in 1978. She then spent 3 years with the USGS in California working on earthquake prediction. At MIT she was appointed the Griswold Professor of Geophysics and served as director of the Joint Program in Oceanography and Applied Ocean Science and Engineering. She is a member of the National Academy of Sciences and the American Academy of Arts and Sciences, and a Fellow of AAAS, American Geophysical Union, and Geological Society of America.
Topical Lecture Series

Karen Emmorey
Director, Laboratory for Language and Cognitive Neuroscience, and Professor of Speech, Language, and Hearing Sciences, San Diego State University
Neural and Cognitive Underpinnings of Language Across Modalities

Robert T. Fraley
Executive Vice President and Chief Technology Officer of Monsanto Co., St Louis, Missouri
Sustainable Solutions for Doubling Crop Productivity by 2030

Lawrence S. B. Goldstein
Director, Stem Cell Research Program, and Professor of Cellular and Molecular Medicine, University of California, San Diego
The Future of Stem Cell Research

Thomas Hillman Jordan
Director, Southern California Earthquake Center, and the W. M. Keck Professor of Earth Sciences, University of Southern California
Understanding Earthquakes Through Large-Scale Simulations

Stephen R. Palumbi
Professor of Biological Sciences, Stanford University
How Marine Species React and Adjust to Ocean Acidification and Climate Change

Kellogg Schwab
Associate Professor and Director of the Center for Water and Health, Johns Hopkins Bloomberg School of Public Health
Improving Access to Potable Water Throughout The World

Steffanie Strathdee
Associate Dean of Global Health Sciences, Harold Simon Professor, and Chief of the Division of Global Public Health, School of Medicine, University of California, San Diego
Infectious Diseases Have No Passport: Battling HIV, TB, and STDs on the Mexico-U.S. Border

2010 GEORGE SARTON MEMORIAL LECTURE

Jed Z. Buchwald
Doris and Henry Dreyfuss Professor of History, California Institute of Technology
Knowledge in the Early Modern Era: The Origins of Experimental Error

Seminar Tracks

Day-long seminars address topics that build bridges between science and society.

Translational and Personalized Medicine

Friday, 19 February

Translational research transforms scientific discoveries from the laboratory bench into practical clinical applications at the patient's bedside. This seminar focuses on the challenges and opportunities in translating the burgeoning science and technology of genomics into a greater understanding of human diseases and personalized treatment.

Evaluating and Funding Translational Research

Organized in cooperation with the journal, Science Translational Medicine

During the last 10 years a new breed of scientist, the clinician-researcher, evolved to take on translational medicine challenges, and a novel set of review criteria for interdisciplinary projects was developed by funding agencies to stimulate translational research. This session addresses the criteria for evaluating translational research and the effectiveness of the NIH Roadmap and the FDA Critical Path Initiatives. It will also cover new paradigms for drug development with an emphasis on biomarker and imaging endpoints. Finally, the speakers will attempt to glance at the future, predicting where technological advancements spurring the discovery of new biomarkers such as genes, proteins, and metabolites. Translational approaches to biomarker identification and qualifications for use will be presented. Experiences with human clinical trials that implement pharmacogenetic biomarkers of safety and efficacy will be described.

To browse the program, register, and reserve hotel rooms, visit www.aaas.org/meetings.
Marine Science and Society

Saturday, 20 February

The oceans provide us with many economic and aesthetic benefits as well as vital ecosystem services. These include seafood, pharmaceuticals, minerals, recreation, and much of the oxygen we breathe. Evaluating available science and unique aspects of marine systems is critical to successful ocean stewardship.

Does Size Matter? Rationales for Large Marine Reserves

Research has demonstrated the value of the world’s great terrestrial parks, from Yellowstone to the Serengeti, in preserving ecosystems, protecting wide-ranging species, and supporting non-extractive industries. Do large ocean reserves offer similar benefits? This session will examine the successes of large terrestrial parks, compare marine and terrestrial reserves of similar scale, and explore conservation benefits of large marine reserves, including increased resilience to climate change. Speakers will discuss what is being learned from existing large, no-take marine reserves and consider ongoing and potential efforts to establish additional large protected areas.

Organized by Emily Frost and Angela T. Bednarek, The Pew Charitable Trusts; Terry Hughes, James Cook University, Australia

Moderator

Jane Lubchenco, National Oceanic and Atmospheric Administration, Washington, DC

Speakers

Stuart L. Pimm, Duke University, Durham, NC
Large Terrestrial Protected Areas and Lessons for the Marine Environment

Stephen R. Palumbi, Stanford University, CA
Spreading the Wealth: Design and Function of Highly Protected Reserve Networks

Terry Hughes, James Cook University, Townsville, Australia
Proving the Benefits of Very Large Marine Reserves

Discussant


Marine Spatial Planning: A New Approach for Balancing Ocean Uses and Ecosystem Health

Human activities have led to significant degradation of ocean ecosystems. This failure is largely due to a traditionally balkanized approach to ocean management. Each activity—such as fishing, shipping, oil and gas development, and renewable energy production—is governed by a different set of laws and administered by a different agency. President Obama has directed all federal agencies with jurisdiction over activities that affect the oceans to develop a “framework for effective coastal and marine spatial planning” that “addresses conservation, economic activity, user conflict, and sustainable use of ocean, coastal, and Great Lakes resources.” This symposium explores the latest developments in the science, policy, and practice of marine spatial planning.

Organized by Morgan Gopnik, Nicholas Institute for Environmental Policy Solutions; Mary Turnipseed, Duke University

Speakers

Larry Crowder, Duke University, Beaufort, NC
The Science and Management of Coupled Social-Ecological Systems in the Ocean

Kevin St. Martin, Rutgers, The State University of New Jersey, New Brunswick
Mapping Communities: Linking People to Ocean Spaces

Andrew Rosenberg, University of New Hampshire, Durham
Advancing Ocean Planning in Massachusetts: The Role of a Unique Stakeholder Coalition

Mary Turnipseed, Duke University, Durham, NC
Re-Imagining the Public Trust Doctrine To Inform U.S. Marine Spatial Planning

Jo Foden, University of East Anglia, Norwich, United Kingdom
Evaluating Marine Plans: Lessons Learned from Aquatic Environmental Assessments

Fanny Douvère, UNESCO, Paris
Marine Spatial Planning: A Step-by-Step Approach Toward Ecosystem-Based Management

Arctic Sea-Ice Loss: What This Means for the Conservation of Arctic Marine Ecosystems

Sea-ice, a distinguishing feature of polar oceans, has a significant influence on the life history, diet, and general ecology of polar marine organisms. Present-day sea-ice loss is fundamentally altering the structure and function of the various components of marine ecosystems in the Arctic, from primary producers to top predators. The observed and projected reduction in perennial sea-ice coverage also will leave room for increased human activity such as transportation, commercial fishing, and oil and gas exploration. To be effective, appropriate management and conservation of the Arctic Ocean must include the potential future response of Arctic ecosystems to sea-ice melt due to climate forcing. This session will explore sea-ice variability in a melting Arctic, offer background on the linkages between sea-ice and Arctic marine ecosystems, examine how they may be responding to reduced ice coverage, and discuss the data and steps that are needed for an effective Arctic conservation plan.

Organized by Tara Connelly and Gabriela Chavarria, Natural Resources Defense Council

Speakers

John Walsh, University of Alaska, Fairbanks
Climate Change in the Arctic: What Are the Signs and What Is Predicted?

Jacqueline Grebmeier, University of Tennessee, Knoxville
The Potential Effect of Sea-Ice Loss on Arctic Marine Ecosystems

Frances Beinecke, Natural Resources Defense Council, Washington, DC
Role of the Aspen Institute’s Commission on Arctic Climate Change in the Arctic

Discussant

Charles Clusen, Natural Resources Defense Council, Washington, DC

History and Future of Laser Technology

Sunday, 21 February

A prominent example of the impact that pure scientific research can have on society is the story of the laser. The 50th anniversary of the first working laser takes place in 2010. From DVD players to eye surgery, the laser is one of the greatest inventions of the 20th century and has revolutionized daily life.

Celebrating the Birth of the Laser: A Look Back After 50 Years

In 1960, the laser was an embryonic research tool with no clear applications beyond the laboratory—“a solution in search of a problem.” Since then, the laser has acquired immense commercial, industrial, and scientific importance. Its impact on how we live, from health care to entertainment to national security, has been enormous. This session tells the story of how the laser came to be, and provides a first-hand account of the birth and early growth of this ubiquitous scientific device.
Organized by Alan Chodos, American Physical Society, College Park, MD; Anthony J. Campillo, Optical Society of America, Washington, DC

**SPEAKERS**

Anthony Siegman, Stanford University, CA  
*How the Laser Came To Be*

William B. Bridges, California Institute of Technology, Pasadena  
*Gas Lasers: The Early Years*

Jeff Hecht, Laser Focus World, Auburndale, MA  
*Looking Back at How the Laser Evolved*

**Next Generation of Extreme Optical Tools and Applications**

The “Century of the Photon” began in 1960 with the invention of a unique light source, the laser. With advancements in higher power, narrower color, shorter wavelength, or higher quality, the usefulness of light as a probe has increased. Each of the laser-based tools covered in this session extends the utility of the photon as a probe of the fundamental properties of the universe and represents the current state-of-the-art in fundamental properties of the universe and represents the current state-of-the-art in developing the next generation of measurement tools and techniques. Topics include the generation of light at the extremes of intensity, photon energy, pulse duration, brightness, and power as well as new applications. Finally, new tools may lead to optical probing of the weakest of the forces, gravity.

*Organized by Christopher Ebbers, Lawrence Livermore National Laboratory*

**SPEAKERS**

Robert L. Byer, Stanford University, CA  
*Quantum Noise Limited Lasers and the Search for Gravitational Waves*

Margaret Murnane, University of Colorado, Boulder  
*Attosecond Light and Science at the Time-Scale of Electron Motion*

Christopher Barty, Lawrence Livermore National Laboratory, Livermore, CA  
*Revolutionizing Isotope Science and Applications with Laser-Like Gamma-Rays*

Keith Hodgson, SLAC National Accelerator Laboratory, Menlo Park, CA  
*Next Generation X-Ray Lasers and Applications*

Toshiki Tajima, Max Planck Institute for Quantum Optics, Garching, Germany  
*Relativistic Optics and Applications with Ultra-Intense Lasers*

Wim Leemans, Lawrence Berkeley National Laboratory, Livermore, CA  
*Laser-Based Particle Acceleration and the Path to TeV Physics*

**Lasers at the Extreme: Ultra-Cold, Ultra-Fast, and Ultra-Hot Uses**

Lasers at the extreme dominate this session. Lasers are involved with the cooling and trapping of atoms, generating “ultra-cold” states of matter on Earth—less than a billionth of a degree above Absolute Zero—that allow the testing of assemblies of atoms governed by quantum mechanical principles. Fiber-optic-based data communication—laser beams transmitted through glass wires—now dominate the movement of information, transmitting much of the world’s conversations and commerce at “ultra-fast” data rates. The National Ignition Facility is now fully operational and ready to conduct experiments at the extremes of pressure and temperature. The experimental campaign to create “ultra-hot” matter in a laboratory, previously occurring only deep within the center of stars, is upon us.

*Organized by Thomas M. Baer, Stanford Photonics Research Institute*

**SPEAKERS**

William D. Phillips, National Institute of Standards and Technology, Gaithersburg, MD  
*Laser Cooling and Trapping: Making the Coldest Stuff in the Universe*

David N. Payne, University of Southampton, United Kingdom  
*How Lasers and Glass Fibers Changed Our World*

Edward Moses, Lawrence Livermore National Laboratory, Livermore, CA  
*National Ignition Facility: Creating Star Power in the Laboratory*

Special Session

**2010 Forum for Sustainability Science Programs**

Thursday, 18 February  
1:00PM–6:00PM

Organized by Arnim Wiek, Arizona State University, Tempe; Amy Fuller, AAAS International Office, Washington, DC

As sustainability considerations rise on both the domestic and international agenda, policy makers at all levels of governance increasingly look to scientists and engineers to provide guidance in creating sustainable societies. Universities have responded by developing academic and research programs in Science and Technology for Sustainable Development or “Sustainability Science” that undertake practical, place-based research to provide decision-support for addressing sustainability challenges.

These inherently interdisciplinary, society-focused programs have converged on the AAAS Annual Meeting as the most appropriate meeting place for networking and exchanging ideas. Beginning with the 2007 Annual Meeting in San Francisco, the AAAS Center for Science, Technology, and Sustainability has convened the AAAS Forum for Sustainability Science Programs.

An important prerequisite to development of course content and curriculum development is having a clear understanding of the core competencies expected of program graduates. The 2010 Forum will focus on this with the ultimate goal of a set of commonly agreed-upon competencies. For more information on this invitation-only event, contact Amy Fuller at afuller@aaas.org.

---

Special AAAS Membership Offer

**Do you know colleagues who are not yet members of AAAS?**

If they register in advance for the 2010 Annual Meeting in San Diego, they will receive a one-year membership to AAAS along with all member benefits. These include a one-year subscription to the journal *Science* and online access to *Science*, all of its archives, and *Science* Express. International members will receive *Science* Digital.

This offer is good for advance registration only, and expires on 28 January 2010. Only nonmembers qualify.

Share the news now.

Register Now: Get special discounts on meeting registration and hotels. Visit www.aaas.org/meetings and click on “Meeting Registration.”
Symposium Tracks

Beyond the Classroom

Building Bridges Between Ocean Scientists, Educators, and Students
Organized by Gwen Noda, University of California, Los Angeles; Linda Duguay, University of Southern California, Los Angeles

Civic Scientific Literacy in Developed and Developing Countries
Organized by Jon D. Miller, Michigan State University, East Lansing; Rajesh Shukla, National Council of Applied Economic Research, New Delhi, India

Learning Science in Informal Environments
Organized by Bruce V. Lewenstein, Cornell University, Ithaca, NY

Mind Changes: Can Out-of-School Learning Contribute to Evolution Literacy?
Organized by Martin Weiss, New York Hall of Science, New York City

Reemergence of Science, Technology, and Education as Priorities in the Arab World
Organized by Ashley Dougherty and Cindi Warren Mentz, U.S. Civilian Research Development Foundation, Arlington, VA

Scientific Foundations for Future Physicians
Organized by Jodi Lubetsky and Anthony Mazzaschi, Association of American Medical Colleges, Washington, DC

Strategies for Diaspora To Be Enablers of S&T Capacity-Building in Their Homelands
Organized by Pallavi Phartiyal, AAAS Science and Policy Programs, Washington, DC; Lara Campbell, CUBRC Center for International Science and Technology Advancement, Washington

Tomorrow’s Scientists and Engineers
Organized by Jon D. Miller, Michigan State University, East Lansing; Greg Pearson, National Academy of Engineering, Washington, DC

Top-Down or Bottom-Up? Comparing European and U.S. Gender Policies in Science
Organized by Marina Marchetti, European Commission, Directorate General for Research, Brussels, Belgium

Cognitive Function and Development

The Brain on Trial: Neuroscience Evidence in the Courtroom
Organized by Deborah Runkle and Mark S. Frankel, AAAS Science and Policy Programs, Washington, DC

From Gene Discovery to Cell Biology in Psychiatry: An Emerging Case
Organized by Tyrone Cannon, University of California, Los Angeles

Language Learning in Deaf Children: Integrating Research on Speech, Gesture, and Sign
Organized by Jenny Saffran, University of Wisconsin, Madison

Language Processing for Science and Society
Organized by Annie Zaenen, Palo Alto Research Center, CA

The Long Reach of Early Childhood Poverty: Pathways and Impacts
Organized by Greg J. Duncan, University of California, Irvine

Music-Language Interactions in the Brain: From the Brainstem to Broca’s Area
Organized by Aniruddh D. Patel, Neurosciences Institute, San Diego, CA

Role of Sleep in Memory from Development to Old Age
Organized by Sara C. Mednick, University of California, San Diego

Stress and the Central Role of the Brain in Health Inequities
Organized by Michael J. Zigmond, University of Pittsburgh, PA; Bruce S. McEwen, Rockefeller University, New York City

Traumatic Brain Injury: The Violent and Silent Epidemic
Organized by Mahlon DeLong and David Wright, Emory University School of Medicine, Atlanta, GA

Unexpected Discoveries on Brain Function and Development from Model Organisms
Organized by S. Lawrence Zipursky, University of California, Los Angeles; Barbara Illman, U.S. Forest Service, Madison, WI

Communicating Science

Communicating Science to the Public: Culture and Social Context in East Asia
Organized by Masataka Watanabe, Japan Science and Technology Agency, Tokyo, Japan; Sook-Kyung Cho, Korea Foundation for the Advancement of Science and Creativity, Seoul; Sun Mengxin, China Association for Science and Technology, Beijing

Communicating on the State and Local Level: How Can Scientists Support Policy-Makers?
Organized by Peyton West and Erin Heath, AAAS Science and Policy Programs, Washington, DC

Covering Global Climate Change and Adaptation from the Ground Up
Organized by Cristine Russell, Harvard University, Cambridge, MA; Deborah Blum, University of Wisconsin, Madison; Phillip Hilts, MIT’s Knight Science Journalism Fellowships, Cambridge, MA

Earthquake Science and Advocacy: Helping Californians Live Along the San Andreas Fault
Organized by Mark L. Benthien, Southern California Earthquake Center, Los Angeles

Eyes on Screen: Communicating Science in the New Information Age
Organized by Sharon Dunwoody, University of Wisconsin, Madison; Lynne Friedmann, Friedmann Communications, Solana Beach, CA

Facing the Uncertain Future of International Science Journalism
Organized by Cristine Russell, Harvard University, Cambridge, MA; James Cornell, International Science Writers Association, Tucson, AZ; Donald Kennedy, Stanford University, CA

Genetics and Ethics: Different Views on the Human Condition
Organized by Walter Doerfler, University of Cologne, Erlangen, Germany; Hans G. Ulrich, Erlangen University, Germany

Plato’s Progeny: Academies of Science
Organized by Lynn E. Elyner, Ohio Academy of Science, Columbus; Jay B. Labov, National Research Council, Washington, DC

Science in the Theater
Organized by Vince LiCata, Louisiana State University, Baton Rouge
Science Meets Society: Walking the Talk
Organized by Viviane Willis-Mazzichi and Raffaella Di Iorio, European Commission, Joint Research Center, Brussels, Belgium

Watching the Watchmen and Cheering the Heroes: The Science of Superheroes
Organized by Cortney Riese Sloan and Ann Merchant, National Academies, Washington, DC; Jennifer Ouellette, National Academy of Sciences, Los Angeles, CA

Education in the Classroom
Can Singapore Mathematics Enhance Student Learning in the United States?
Organized by Patsy Wang-Iverson, Gabriella and Paul Rosenbaum Foundation, Stockton, NJ

Demonstrating the Legal Sustainability of Effective STEM Diversity Programs
Organized by Daryl E. Chubin, AAAS Education and Human Resources, Washington, DC

Education Research at Minority-Serving Institutions: What Have We Learned?
Organized by Marilyn J. Suiter, National Science Foundation, Arlington, VA

First-Person Solvers? Learning Mathematics in a Video Game
Organized by Keith Devlin, Stanford University, CA

Role of Community Colleges in Increasing Minority Students in the STEM Pipeline
Organized by Anne Jane MacLachlan, University of California, Berkeley

Science Literacy: How To Train Teachers, Engage Students, and Maximize Learning
Organized by Michael W. Klymkowsky, University of Colorado, Boulder

Scientific Approaches to Teaching Science in K-16 Education
Organized by Robert E. Fay, Westat, Bethesda, MD

TIMSS 2007: Exploring the Dramatic Improvements in Performance in Two States
Organized by Patsy Wang-Iverson, Gabriella and Paul Rosenbaum Foundation, Stockton, NJ

Visualization in the Mind and in the World: Implications for STEM Education
Organized by Mary Hegarty, University of California, Santa Barbara

Worlds of Wonder: Can Video Games Teach Science?
Organized by Yasmin Kafai, University of Pennsylvania, Philadelphia; Douglas Clark, Vanderbilt University, Nashville, TN

Energy Today and Tomorrow
Advanced Nuclear Energy Concepts for a Safe, Sustainable, Carbon-Free Future
Organized by Tomas Diaz de la Rubia, Lawrence Livermore National Laboratory, Livermore, CA; Robert Rosner, Argonne National Laboratory, Argonne, IL

Biofuels’ Uncertain Future: Unraveling the Science and Politics of Indirect Land Use
Organized by Holly K. Gibbs, Stanford University, CA; Richard Plevin, University of California, Berkeley

Combating Global Emissions: The Urgent Need for a New Strategy in the Asia-Pacific Rim
Organized by Ellyn M. Murphy and Yong Wang, Pacific Northwest National Laboratory, Richland, WA

Consequences of Changes in Energy Return on Energy Invested
Organized by Carey King, University of Texas, Austin

Gray Is the New Green: How Energy Recycling Curb Both Global Warming and Power Costs
Organized by Thomas Casten, Recycled Energy Development, Westmont, IL

Nanoenergization: Will Nanomaterials Revolutionize Energy Applications?
Organized by S. Thomas Picraux, Los Alamos National Laboratory, Los Alamos, NM

Smart and Secure Transmission Grids To Realize U.S. and E.U. Renewable Energy Potentials
Organized by Gianluca Fulli and Giovanni De Santi, European Commission, Joint Research Center, Petten, Netherlands

Societal Strategies for Addressing the Climate and Energy Challenge
Organized by Jane C.S. Long, Lawrence Livermore National Laboratory, Livermore, CA

Nuclear Waste Management: From Public Perception to Industrial Reality
Organized by Didier J. Haas, European Commission, Joint Research Center, Brussels, Belgium

Urban Design and Energy Demand: Transforming Cities for an Eco-Energy Future
Organized by Nancy Levinson, Arizona State University, Tempe

Global Science and Policy
Bottom-of-the-Economic-Pyramid Technological Solutions: Lessons from Success Stories
Organized by William S. Kisaalita, University of Georgia, Athens

Building International Security Through Lab-to-Lab Exchanges
Organized by Benn Tannenbaum, AAAS Center for Science, Technology, and Security Policy, Washington DC, DC

Information Technologies and Remote Sensing for Understanding Human Rights Violations
Organized by Lars Bromley, AAAS International Office, Washington, DC

Mobilizing East Asian Science and Technology To Address Critical Global Challenges
Organized by Asuka Hoshikoshi and Yuko Nagano, National Institute of Science and Technology Policy, Tokyo, Japan

The Next Big Thing: Keys in the Transformation from Science to Society
Organized by Gerald Hane, Q-Paradigm, Rockville, MD

Oceans Apart? Transatlantic Perspectives on Public Research and Business Innovation
Organized by Eamonn Cahill, Office of the Chief Scientific Adviser, Dublin, Ireland

Privacy in a New Global Context: Trapped Between Culture, Laws, and Technology
Organized by Stephan Lechner, JRC Institute for the Protection and Security of the Citizen, Ispra, Italy; Aidan Gilligan, European
Science Academies in Society
Organized by Daniel Schaffer and Tasia Asakawa, Academy of Sciences for the Developing World, Trieste, Italy

What Went Wrong with the Global Economy?
Organized by Rolf Sinclair, Center for Scientific Studies, Valdivia, Chile; J. Doyne Farmer, Santa Fe Institute, NM

When Science Goes Global, Can Everybody Win?
Organized by Sieglinde Gruber, Alessandro Damiani, and Mary Kavanagh, European Commission, Directorate General for Research, Brussels, Belgium

Working Together for the Public: Challenges for Verification of Nuclear Activities
Organized by Aidan Gilligan, European Commission, Joint Research Center (JRC), Brussels, Belgium

Health, Medicine, and the Environment
Applying Biogenomics to Ecology: From the Molecular to the Ecosystem Level
Organized by Teresa Lettieri, JRC Institute for Environment and Sustainability, Ispra, Italy

A California Roadmap for Identifying Chemicals that Affect Breast Cancer Risk
Organized by Sarah Janssen, Natural Resources Defense Council (NRDC), San Francisco, CA; Gabriela Chavarria, NRDC, Washington, DC

Consequences of Endocrine Disrupting Agents in the Laboratory and Home
Organized by John G. Vandenbergh, North Carolina State University, Raleigh; A. Wallace Hayes, Harvard School of Public Health, Andover, MA

False Discoveries and Statistics: Implications for Health and the Environment
Organized by Ron Brookmeyer, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD; Robert E. Fay, Westat, Bethesda, MD

The Impact of Genomics
Organized by Stephen G. Oliver, University of Cambridge, United Kingdom

Innate Immunity: Theme and Variations
Organized by David H. Raulet, University of California, Berkeley; Christine A. Biron, Brown University, Providence, RI; Sondra Schlesinger, Washington University School of Medicine, St. Louis, MO

Moving Across Scales: Mathematics for Investigating Biological Hierarchies
Organized by Louis J. Gross, University of Tennessee, Knoxville

Mutators Versus Antimutators in Evolution and Medicine
Organized by Robert C. von Borstel, University of Alberta, Edmonton, Canada

One Health: Attaining Optimal Health for People, Animals, and the Environment
Organized by Barbara Hyde, American Society for Microbiology, Washington, DC

Protecting the Consumer: Can “Omics” Keep the Promise?
Organized by Aidan Gilligan, European Commission, Joint Research Center, Brussels, Belgium

Rethinking the Science, Biology, and Importance of Stem Cells in Regenerative Medicine
Organized by Irving Weissman, Stanford University School of Medicine, Palo Alto, CA; Sondra Schlesinger, Washington University School of Medicine, St. Louis, MO; Carol Newlon, University of Medicine and Dentistry of New Jersey, Newark

Science of the Small: Nano-Bio- Technology Under the Biological Microscope
Organized by Barbara Illman, U.S. Forest Service, Madison, WI; Vicki Colvin, Rice University, Houston, TX

Physical Sciences Frontiers
50 Years of Exobiology and Astrobiology: Past, Present, and Future Life in the Universe
Organized by Linda Billings, George Washington University, Washington, DC; Jeffrey Bada, University of California, San Diego

Are Neutrinos the Reason We Exist?
Organized by Kurt Riesselmann, Fermi National Accelerator Laboratory, Batavia, IL

The Arrow of Time
Organized by Sean M. Carroll, California Institute of Technology, Pasadena

Astrobiology and the Future: Science, Ethics, and Societal Issues on Earth and Beyond
Organized by Margaret Race, SETI Institute, Mountain View, CA

Doomsday Versus Discovery
Organized by Renilde Vanden Broeck, CERN, Geneva, Switzerland; Katie Yurkewicz, Fermi National Accelerator Laboratory, Batavia, IL

How Computational Science Is Tackling the Grand Challenges Facing Science and Society
Organized by Edward Seidel, Carmen Whitson, and José Muñoz, National Science Foundation, Arlington, VA

Managing the Exaflood: Enhancing the Value of Networked Data for Science and Society
Organized by Bonnie C. Carroll, Information International Associates Inc., Oak Ridge, TN; Paul F. Uhlir, National Research Council, Washington, DC

Particles and People: How Basic Physics Benefits Society
Organized by Elizabeth Clements and Katie Yurkewicz, Fermi National Accelerator Laboratory, Batavia, IL

Physics and Art: A Gateway to the Sciences
Organized by Christopher M. Smith, Center for Theoretical Biological Physics, La Jolla, CA

Real Numbers: Mathematical Technologies for Counterterrorism and Border Security
Organized by Jonathan D. Farley, Johannes Kepler University Linz, Austria; Tony Harkin, Rochester Institute of Technology, NY; Anice Anderson, Rose-Hulman Institute of Technology, Terre Haute, IN

SETI Turns 50
Organized by Jill C. Tarter, SETI Institute, Mountain View, CA

Traffic, Crowds, and Society
Organized by Nicola Bellomo, Polytechnic University of Turin, Torino, Italy; Andrea Bertozzi, University of California, Los Angeles

What’s Next for the Net? The Internet of Things and Ubiquitous Computing
Organized by Michael R. Nelson, Georgetown University, Washington, DC
Protecting Marine Resources

Adam Smith Meets Jacques Cousteau: Using Economics To Protect Marine Resources
Organized by Benjamin Halpern, University of California, Santa Barbara; Anne Guerry, National Oceanic and Atmospheric Administration (NOAA) Northwest Fisheries Science Center, Seattle, WA

Confronting Ocean Acidification: Options for Management and Policy
Organized by Susan Park, National Research Council, Washington, DC; Victoria J. Fabry, California State University, San Marcos

Denial, Detente, and Decisions: Fisheries Science at the Crossroads
Organized by Alison Rieser, University of Hawaii at Manoa, Honolulu, HI; John Lynham, University of Hawaii at Manoa, Honolulu, HI

Designing the Future Ocean: Baseline Data Needs for Marine Spatial Planning
Organized by Alison Chase and Lisa Suatoni, Natural Resources Defense Council (NRDC), New York City; Gabriela Chavarria, NRDC, Washington, DC

Ensuring Marine Policy Is Responsive to Social Dynamics and Management Experience
Organized by Patrick Christie, University of Washington, Seattle; Richard Pollnac, University of Rhode Island, Kingston

Land-Ocean Linkages and Dynamics of High-Productivity Ecosystems in the Sea of Cortes
Organized by Exequiel Ezcurra, University of California, Riverside

Limits to Sustainability of Coral Reef Fisheries
Organized by Ayana Elizabeth Johnson, University of California, San Diego

Management and Governance in a Melting Marine Arctic: Challenges and Opportunities
Organized by Lisa Speer, NRDC, New York City; Gabriela Chavarria, NRDC, Washington, DC

Marine Reserves in a Changing World: Connecting Research with Human Needs
Organized by Steven Gaines, University of California, Santa Barbara; Kirsten Grorud-Colvert, Oregon State University, Corvallis; Sarah Lester, University of California, Santa Barbara

One Fish, Two Fish, Red Fish, New Fish: Society Needs Marine Biodiversity Research
Organized by Heather Mannix, Consortium for Ocean Leadership, Washington, DC

Unraveling the Mysteries of the Deep: Effects of Human Activities on Marine Megafauna
Organized by Rebecca Lewison, San Diego State University, CA

Will Coral Reefs Disappear? Separating Fact from Conjecture
Organized by Joanie Kleypas, National Center for Atmospheric Research, Boulder, CO; Kimberley Yates, U.S. Geological Survey, St. Petersburg, FL

Public Health and Wellness

Children of Assisted Reproductive Technologies: Their Health and New Genetic Issues
Organized by Marvin L. Meistrich, University of Texas M.D. Anderson Cancer Center, Houston

Decoding the Secret Pathologies of Dolphins: Significance for Human and Ocean Health
Organized by Carolyn Sotka, National Oceanic and Atmospheric Administration (NOAA) Oceans and Human Health Initiative, Charleston, SC; Paul Sandifer, NOAA Oceans and Human Health Initiative, Charleston, SC

Food Allergies: The Enemy Within
Organized by Aidan Gilligan, European Commission, Joint Research Center (JRC), Brussels, Belgium; Doris Florian, JRC Institute for Reference Materials and Measurements, Geel, Belgium

Healthy and Plentiful Animal-Based Foods: Science Offers New Possibilities
Organized by Rodney A. Hill, University of Idaho, Moscow; Larry Braren, University of Idaho, Coeur d’Alene

Impact of Biomedical Progress on Health Span and Health Care of the Elderly
Organized by Edward J. Goetzl, University of California, San Francisco

Improving Oral Health: Smiles for Life
Organized by Huw F. Thomas, University of Alabama, Birmingham

Repairing Our DNA: Bridging Molecular Mechanism and Human Health
Organized by Graham C. Walker, Massachusetts Institute of Technology, Cambridge

Science in Motion: Addressing Complex Health Problems Through Upstream Solutions
Organized by Patricia L. Mabry, Christine Bachrach, and Dana M. Sampson, National Institutes of Health, Bethesda, MD

The Science of Well-Being and Implications for Societal Quality of Life
Organized by Ed Diener, University of Illinois, Urbana-Champaign

Targeting HIV/AIDS Prevention: New Research and Future Avenues
Organized by Rochelle A. Diamond, California Institute of Technology, Pasadena; Andrew M. Hebbeler, Gladstone Institute of Virology and Immunology, San Francisco, CA

Tracking and Tracing Our Food Supply: The Way Forward
Organized by Ewen C. Todd, Michigan State University, East Lansing

Translating the Science of Vector-Borne Disease to the Improvement of Global Health
Organized by Nancy E. Beckage, University of California, Riverside; Joseph M. Vinetz, University of California, San Diego

Responding to Environmental Change

Algae for Food, Feed, Fiber, Freshwater, and Fuel
Organized by Michael Webber, University of Texas, Austin

America’s Climate Choices: Potential Strategies for a U.S. Response to Climate Change
Organized by Ian Kraucunas, National Academy of Sciences, Washington, DC; Thomas Dietz, Michigan State University, East Lansing; Thomas J. Wilbanks, Oak Ridge National Laboratory, TN

Can Geoengineering Save Us from Global Warming?
Organized by Alan Robock, Rutgers University, New Brunswick, NJ; Margaret Leinen, Climos Inc., Alexandria, VA

Can Science Feed the World?
Organized by Tracey Elliott, Royal Society, London, United Kingdom

Climate Change in Working Landscapes: Sustainability Science and Policy Perspectives
Organized by Ashwini Chhatre, University of Illinois, Urbana-Champaign

To browse the program, register, and reserve hotel rooms, visit www(aaas.org/meetings.
Coastal Adaptation
Organized by So-Min Cheong, University of Kansas, Lawrence; Robert Nicholls, University of Southampton, United Kingdom

Co-Evolution of Science and Society for Sustainability Innovation
Organized by Masaru Yarime, University of Tokyo, Japan

Geoeengineering the Climate: The Royal Society Study
Organized by Tracey Elliott, Royal Society, London, United Kingdom

Greening Cities Through Media, Education, and Science
Organized by Marla S. McIntosh, University of Maryland, College Park; Albert G. Medvitz, McCormack Sheep and Grain, Rio Vista, CA

Human Dimensions of Geoeengineering
Organized by Brad Allenby, Arizona State University, Tempe; Peter A. Wilderer, European Academy of Sciences and Arts, Schliersee, Germany

Infusing Science into Sustainable, Master-Planned Communities
Organized by Carla Carlson, University of Minnesota, Minneapolis

Research Translation and Environmental Health: A U.S.-Mexico Border Initiative
Organized by Keith Pezzoli, University of California, San Diego

Science, Policy, and Economics
The American Community Survey and the Census: A New Foundation for the Social Sciences
Organized by William Eddy, Carnegie Mellon University, Pittsburgh, PA

DNA Identifiability: Ethical Issues and Policy Challenges
Organized by Joel T. Wu and Barbara Koenig, Mayo Clinic, Rochester, MN

Ethical and Societal Dimensions of Biosecurity and Dual-Use Research
Organized by Lida Anestidou and Jo Husbands, National Academies, Washington, DC

The Future of the National Science Foundation on Its 60th Anniversary
Organized by John Tsapogas and Ann Ferrante, National Science Foundation, Arlington, VA

Intelligence of Dolphins: Ethical and Policy Implications
Organized by Stephanie J. Bird, Science and Engineering Ethics, Wrenteth, MA; Thomas I. White, Loyola Marymount University, Redondo Beach, CA; Dena K. Plennmons, University of California, San Diego

Mathematics and the Analysis of Fairness in Political Processes
Organized by Michael A. Jones, Mathematical Reviews, Ann Arbor, MI

Past, Present, and Future of Forensic Science in the United States
Organized by Sarah P. Chu, Innocence Project, New York City

Scientific Rationality and Policy-Making: Making Their Marriage Work
Organized by Aidan Gilligan, European Commission, Joint Research Center, Brussels, Belgium

Speaking Scientific Truth to Power
Organized by Lisa M. Lambert, Maria Trainer, and Christina Stachulak, Council of Canadian Academies, Ottawa

Using GIS and Spatial Analysis To Better Understand Patterns and Causes of Violence
Organized by William Alex Pridemore, Indiana University, Bloomington

Value and Limits of Scientific Research: Past and Future R&D Budgets

A Wobbly Three-Legged Stool: Science, Politics, and the Public
Organized by Lewis M. Branscomb, University of California, San Diego

Understanding Environmental Change
Bridging Science and Society for Sustainability: The Role of Visualization
Organized by Arnim Wiek, Arizona State University, Tempe; Villy Christensen, University of British Columbia, Vancouver, Canada

Dust in the Earth System
Organized by E. Arthur Bettis III, University of Iowa, Iowa City; Paul M. Bertsch, University of Kentucky, Lexington; Nicholas Lancaster, Desert Research Institute, Reno, NV

Getting to the Roots of Agricultural Productivity
Organized by Daniel Bush, Colorado State University, Fort Collins; Jonathan Lynch, Pennsylvania State University, University Park

Global Food Security, Land Use, and the Environment: Future Challenges
Organized by Jonathan A. Foley and David Tilman, University of Minnesota, St. Paul, MN

Integrated Science for Society and the Environment
Organized by G. Philip Robertson, Michigan State University, Hickory Corners; Scott L. Collins, University of New Mexico, Albuquerque

Preserving the Global Commons Through Conservation and Cooperation
Organized by Jennifer Jacquet, University of British Columbia Fisheries Center, Vancouver, Canada; John Hocevar, Greenpeace USA, Austin, TX

Progress in the Use of Earth Observation for Fighting Hunger
Organized by Aidan Gilligan, European Commission, Joint Research Center (JRC), Brussels, Belgium; Oliver Leo, JRC Institute for the Protection and Security of the Citizen, Ispra, Italy

Sea Ice in the Changing Climate: Modeling a Multiscale Nonlinear System
Organized by Kenneth M. Golden, University of Utah, Salt Lake City

Sustainability Science: Transformative Research Beyond Scenario Studies
Organized by Arnim Wiek, Arizona State University, Tempe; Katja Brundiers, Arizona State University, Tempe

Understanding Climate-Change Skepticism: Its Sources and Strategies
Organized by Riley E. Dunlap, Oklahoma State University, Stillwater

Up in Flames: Fire in a Changing Environment
Organized by Susan G. Conard, U.S. Forest Service (retired), Silver Spring, MD