

Looking for a Fresh Perspective?

Join other experts and leaders from around the globe at the 2008 AAAS Annual Meeting

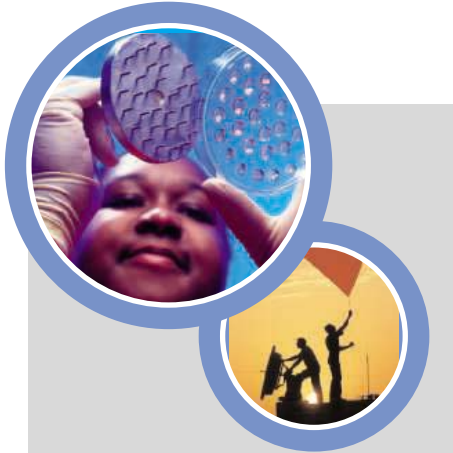


**Come to Boston
14–18 February 2008**

Broaden your networks
and knowledge at the
most cross-disciplinary
conference in the world

2008 AAAS Annual Meeting

14–18 February • Boston



Special Events Include:

- Marine Sciences Seminar
- Forum for School Science
- Town Hall on Understanding Obesity and Childhood Nutrition

Highlights:

- Opening Ceremony
- 160 Symposia
- Plenary Lectures
- Topical Lectures
- Poster Sessions
- Family Science Days

Career Extras:

- *Science* Careers Fair
- Specialized Career Workshops
- Dynamic Career Resource Center

Dear Colleagues,

On behalf of the AAAS Board of Directors, it is my distinct honor to invite you to Boston for the 174th National Meeting of the American Association for the Advancement of Science.

The theme for the meeting — "Science and Technology from a Global Perspective" — emphasizes the power of science and technology as well as education to assist less-developed segments of the world society, to improve partnerships among already-developed countries, and to spur knowledge-driven transformations across a host of fields.

As you know, 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 to witness the broad influence of science and technology on society. **You will have the opportunity to interact with a diverse array of leading scientists, engineers, educators, students, and policy-makers.**

Attendees will have the opportunity to choose among a broad range of activities, including 160 symposia, seminars, and career development workshops as well as plenary and topical lectures by some of the world's leading scientists and engineers. Typically the meeting includes up to 10,000 participants and hundreds of members of the national and international media.

A public-engagement event on "Understanding Obesity and Childhood Nutrition" is intended to expand the dialogue among scientists, teachers, students, policy-makers, education leaders, and the general public on the science behind childhood obesity and nutrition. It will feature a broad and exciting array of speakers with a strong focus on strategies for addressing the problem. You and your family can also enjoy **Family Science Days** — a free event open to the general public.

The following pages present the highlights of the scientific program to date. You can explore the program online, obtain updates, and develop a personal itinerary at www.aaas.org/meetings.

The Annual Meeting reflects tremendous efforts from the AAAS sections, divisions, and committees, which we gratefully acknowledge. I also extend a personal thanks to the members of the Annual Meeting Scientific Program Committee who reviewed and assembled the many excellent ideas and proposals into this outstanding meeting.

Please join us in Boston,
David Baltimore, Ph.D.
AAAS President
Robert Andrews Millikan Professor of Biology
California Institute of Technology

PHOTOS THIS PAGE COURTESY OF USDA.
PHOTOS OF RESEARCHERS OPPOSITE PAGE COURTESY OF USDA.

Plenary and Topical Speakers

Attend plenary and topical lectures given by eminent scientists and engineers.

Plenary Lectures



PRESIDENT'S ADDRESS

David Baltimore, Ph.D.

AAAS President; Robert Andrews Millikan Professor of Biology, California Institute of Technology

Baltimore is one of the world's leading biologists and a co-recipient of the 1975 Nobel Prize in Medicine for the discovery of reverse transcriptase. Since then, he has published more than 600 papers, including seminal research on the genetics of cancer, the workings of the HIV virus and AIDS vaccine candidates, and fundamental observations in molecular immunology. He was founding director of the Whitehead Institute for Biomedical Research and president of Rockefeller University and Caltech. Today he heads the Baltimore Lab at Caltech, with support from the Gates Foundation, to look for ways to genetically boost the immune system against infectious pathogens, particularly HIV. Throughout his career, Baltimore has influenced science policy. He helped set standards for recombinant DNA technology and received the 1999 National Medal of Science in part for his work on AIDS research policy. Today he is outspoken about what he sees as government efforts to distort and suppress scientific research.

President's Reception: Immediately following



Nina V. Fedoroff, Ph.D.

Special Adviser, Science and Technology, U.S. Department of State
Evan Pugh Professor of Biology and Willaman Professor of Life Sciences, Huck Institutes of the Life Sciences, Pennsylvania State University
Making the World Flat: Science and Technology in the Developing World

In August 2007, Fedoroff was named the Science and Technology Adviser to U.S. Secretary of State Condoleezza Rice. She holds an academic post as the Evan Pugh Professor of Biology and Willaman Professor of Life Sciences at Pennsylvania State University, where she is also founding director of the Huck Institutes of the Life Sciences. As a leading geneticist and molecular biologist, she has contributed to the development of modern techniques used to study and modify plants. Her book, *Mendel in the Kitchen: A Scientist's View of Genetically Modified Foods*, examines the scientific and societal issues surrounding the introduction of genetically modified crops. She received the 2006 National Medal of Science for her pioneering work on plant molecular biology and for being the first to clone and characterize maize transposons.

Plenary Lecture Panel *Global Health Challenges*

AAAS President David Baltimore, moderator

Jim Yong Kim, M.D., Ph.D.

Director, François Xavier Bagnoud Center for Health and Human Rights, Harvard School of Public Health, and Professor of Social Medicine and Medicine, Harvard Medical School (invited)

Peter Piot, M.D., Ph.D.

Executive Director, UNAIDS, and Under Secretary-General of the United Nations



JIM YONG KIM



PETER PIOT

AAAS President Baltimore will moderate a Davos-style panel discussion that explores global health challenges from three perspectives: philanthropy, world leadership, and program successes and challenges. Executive director of UNAIDS since its creation in 1995 and under secretary-general of the United Nations, Piot comes from a distinguished academic and scientific career focusing on AIDS and women's health in the developing world. Drawing on his skills as a scientist, manager, and activist, he has challenged world leaders to view AIDS in the context of social and economic development as well as security. Kim has worked to improve health in developing countries for more than 20 years and is an expert in tuberculosis. He is a founding trustee and the former executive director of Partners In Health, a not-for-profit organization that supports a range of health programs in poor communities in Haiti, Peru, Russia, Rwanda, and the United States. A panelist will be added to offer a perspective on providing support to combat diseases and to address other global health concerns.



Topical Lectures

Angela M. Belcher, Ph.D.

Germeshausen Professor of Materials Science and Engineering and Biological Engineering, Massachusetts Institute of Technology
From Nature and Back Again: Giving New Life to Materials for Energy, Electronics, and the Environment

Janet Browne, Ph.D.

Aramont Professor of the History of Science, Harvard University
2007 George Sarton Award Lecture in the History and Philosophy of Science
Commemorating Darwin: The History of Scientific Celebrations

Charles Elachi, Ph.D.

Director, NASA Jet Propulsion Laboratory
The Golden Age of Robotic Space and Earth Exploration: Challenges and Opportunities

Daniel Kahneman, Ph.D.

Eugene Higgins Professor of Psychology, Princeton University
2007 John P. McGovern Lecture in the Behavioral Sciences
Architecture of the Mind

Curtis T. McMullen, Ph.D.

Cabot Professor of Mathematics, Harvard University
The Geometry of 3-Manifolds

Per Pinstrup-Andersen, Ph.D.

H.E. Babcock Professor of Food, Nutrition, and Public Policy, Cornell University
Science and Policy Priorities for the Global Food System

Nathan D. Wolfe, Ph.D.

Professor of Epidemiology, UCLA School of Public Health
Viral Forecasting

Topical Lecture Panel

Advancing Science and Fostering Innovation Through International Cooperation: A Trans-Atlantic Perspective

AAAS President David Baltimore, moderator

Mark Fishman, M.D.

President, Novartis Institutes for BioMedical Research

Janez Potocnik, Ph.D.

Commissioner for Science and Research, European Commission



PHOTOS OF RESEARCHERS COURTESY OF USDA.

Discount Airfares to Boston

American Airlines and Delta Airlines, the official carriers for the 2008 AAAS Annual Meeting, are offering discounted airfare to and from the meeting.

For details, visit: www.aaas.org/meetings and select "Travel Information."



Explore the possibilities

Experts from 56 countries will share their work and perspectives on the breadth of science, engineering, and technology. Explore new advances, opportunities, and frontiers – all from a fresh perspective.

Climate Change and the Environment

- Biological Adaptation to a Changing Climate
 - The Carbon Journey: Understanding Global Climate Effects and Advancing Solutions
- Global Interactions Between Climate Change and Microbial Activity
- Ocean Acidification and Carbon–Climate Connections: Lessons from the Geologic Past
 - Ocean Iron Fertilization and Carbon Sequestration: Can the Oceans Save the Planet?
 - The Other Carbon Dioxide Problem: Ocean Acidification
 - Probing Arctic Regions: Linking Past Records, Present Effects, and Future Predictions
 - Strange Days on Planet Ocean: New Insights on the Effects of Climate Change
 - To What Extent Does Solar Variability Contribute to Climate Change?
 - Transforming Our Ability To Predict Climate Change and Its Effects
 - Under Thin Ice: Global Warming and Predatory Invasion of the Antarctic Seas

Communicating Science and Technology

- Communicating Science in a Religious America
- A Comparative Look at Markets, Media, and Emerging Attitudes About Nanotechnology

- A Crack in the Lab Door: The State of “Upstream Engagement” in Science
- Design of Mechanical Puzzles
- Engaging the European Public in New Science
- Global Issues: Helping the Public Understand When Scientific Information Is Valid
- Global Warming Heats Up: How the Media Covers Climate Change
- Improving Public Understanding of Engineering: From Research to Practice
- Major Transformations in Evolution: The State of the Art and Public Understanding
- New Techniques in the Evaluation and Prediction of Baseball Performance

Ecology and Resource Management

- Adaptation Options for Climate-Sensitive Ecosystems and Resources
- Designing Self-Maintaining Deltas: A Multidisciplinary Approach to Restoration
- Drylands and the City: Global Issues and Perspectives
- Finding Sustainability Without Stability: New Goals for a World in Flux
- Forum for Sustainability Science Programs
- Into the Deep: Ecology and Evolution of Deep-Sea Corals
- Planet Earth: Lessons Ignored, Lessons Learned
- Soil Protection for Sustainable Well-Being
- The Unnatural History of the Sea: New Insights and Baselines for Ocean Recovery



Visit our Web site for a listing of speakers and complete details of the meeting:

www.aaasmeeting.org

- Will Too Few Jaws Take Too Big a Bite? The Importance of Sharks to Ocean Ecosystems
- Education and the Work Force
- Aiming Higher: The How and Why of Advancing Women in Agricultural Sciences
- Defining Secondary Science Education Through Advanced Placement Redesign
- Emerging Research for Women in Science in the New Century
- Inside the Double Bind: Women of Color in STEM
- Looking Across the Ocean: Increasing Science and Engineering Women Faculty
- PISA 2006: How Well Prepared Are 15-Year-Olds for a Global Scientific Society?
- Power in Its Place: Science in Tribal Education
- Promoting the Success of Minority Graduate Students
- Science for Tomorrow's Citizens and Leaders

Food Protection and Supply

- Dolly for Dinner? Technological and Socioeconomic Perspectives of Animal Cloning
- Embracing Change: A New Vision for Management in Coastal Marine Ecosystems
- Energy, Agriculture, and People: Global Implications for Science and Policy
- Food Security and Climate Change in Africa
- Last Best Chance for Tuna: Learning from the Cod Collapse
- The Privilege To Fish

Future of Energy

- Biofuels from Forest-Based Biomass
- Biomass-to-Biofuels Conversion: Technical and Policy Perspectives
- Burn or Bury? Global Proposals for Managing Highly Radioactive Nuclear Waste
- Coal Gasification: Myths, Challenges, and Opportunities
- Food and Fuel: Biofuels, Development, and a Sustainable Bioeconomy

- Progress in Magnetic Fusion Energy Research: 50 Years of International Collaboration and Future Prospects
- Materials Synthesis Opportunities for Global Energy Needs
- Nanocatalysis for Clean Energy and Sustainability
- Nuclear Reactor Systems of the Future: Costly Illusion or Promising Breakthrough?
- A Thirst for Power: The Global Nexus of Energy and Water
- World Biofuels Production Potential in the Next Decade

Global Health: What's Next?

- Drugs in Our Corn Flakes? Our Health and the Economic Risks of "Pharma" and Industrial Crops
- Fighting the Global Obesity Epidemic: Small Steps or Big Changes?
- From Kitchen Sinks to Ocean Basins: Emerging Chemical Contaminants and Human Health
- How the Bugs Come Back and Bite Us: The Rise of Agricultural Pathogens
- Measuring Human Exposures to Hormone Disruptors: Scientific Tools for Global Health
- Overcoming the Current Challenges in HIV/AIDS
- A Perspective on Infectious Diseases: Challenges to Global Health
- Preparing for the Health Effects of Climate Change: Science and Societal Strategies
- Sustaining Human Health in a Changing Global Environment
- Understanding the Linkages Between Environmental Toxicity and Human Disease
- A Viral Time Bomb: Hepatitis C in the Developing World

Human Development and Understanding

- Advances in Language and Speech Science and Technology
- Brain Basis of Speech
- Cross-Cultural Perspectives and Mental Illness

- How Can Social Learning Move Us Toward Sustainability?
- Imagining the Future: New Perspectives from Psychology and Neuroscience
- Mathematics and the Brain
- Mind of a Toolmaker
- Moral Judgment: Evolutionary and Psychological Perspectives
- Poverty and Brain Development: Correlations, Mechanisms, and Societal Implications
- Thinking With and Without Language

Opportunities for the Developing World

- Access to Medicines: Fostering Unique Collaborations, Overcoming Challenges
- Collaboratively Developing Student Mathematical Thinking Among APEC Member Economies
- Earth Observation for Africa, with Africa
- Geospatial Science, Global Change, and Sustainability in Africa
- It Takes a Bank to Raise a Village: Financing Science and Technology for Sustainable Development
- Producing Scientists and Engineers in Developing Countries: New University Paradigms
- Progress in Human Genetics Research in Africa: Science, Technology, and Ethics





Special AAAS Membership Offer

Do you have colleagues who are not yet members of AAAS?

If they register in advance for the 2008 Annual Meeting in Boston, they will receive a one-year membership to AAAS along with all member benefits. These include a one-year subscription to the journal *Science*, online access to *Science* and all of its archives, and access to *Science Express*. International members will receive *Science Digital*.

This offer is good for advance registration only, and expires on 18 January 2008. Only nonmembers qualify.

Share the news now.

Register Now: Get special discounts on meeting and hotel registration.

Visit www.aaas.org/meetings and select  Register

- Science and Technology for Sustainable Development: The African Context
- Supporting African Scientists in the Quest for Sustainability: After Training, What?
- Our Networked World
- Blogs, Boards, and Bonding: Using Electronic Communities To Support Women in Science
- Building Science Capacity with Linked Observation Systems: Seismological Perspectives
- Challenges in Collecting and Interpreting Data in Humanitarian Emergencies
- Enhancing Science Globally Through High-Performance Computing and Simulation
- From Space to Village: Promoting Sustainable Development Using Satellite Observations
- The Global Dimension of Research Infrastructures
- Information, Computing, and Communications: Keys to Sustainable Global Development
- Managing and Preserving Scientific Data: Emerging Perspectives on a Global Basis
- Power of the Internet To Facilitate Science Education and Networking: The Supercourse
- Seeing Science
- Virtual Observatories and Research Collaboratories: Network-Enabled Science
- Science and Engineering on the Horizon
- 50 Years of the Space Age: Looking Back, Looking Forward
- Earth Observations from Space: 50 Years of Accomplishments
- Global Diffusion of Nanotechnology: Lessons from China, Italy, and the United States
- Grand Challenges and Opportunities for Engineering in the 21st Century
- High-Powered Lasers: Fusion Ignition and Concomitant Scientific Opportunities
- Mars Rovers: The Exploration of Mars
- New Diamond Age: From Optics and Electronics to Spintronics and Nucleonics
- Nuclear Physics: New Answers, New Questions About the Visible Universe
- Quantum Information Theory
- What Is a Planet?
- Worldwide Hunt To Solve the Mystery of Gamma-Ray Bursts

Science, Technology, and Public Policy

Advocacy in Science: Opportunities, Limits, Responsibilities, and Risks

- Art and Connoisseurship: New Scientific Techniques Conserve Art and Architecture
- Optimal Laboratory Animal Care and Use: The Road to International Guidelines
- Strengthening Federal Science Through the 2009 Presidential Transition
- Toward a New Climate Economics: Can We Afford the Future?
- Turning the Tide? Current Climate and Energy Technology Policy Negotiations
- We the People: Funding Science Through Direct Democracy
- Where Does “Think Globally, Act Locally” Come From?
- Whose Scientific Judgment?

The Scientific Enterprise

- Ethical Issues in Scientific Publishing
- From Global to Local: Impact of Field Research in Biological Anthropology
- Global Research Competitiveness in Times of Social Transition
- Is It Possible To Predict the Future of Science?
- Research and Technology at the Crossroads of the Debate on Biopiracy
- Sustainability of Open Access: Does Increasing Global Access Come with Hidden Costs?
- Translation of Fundamental Cancer Biology: Toward Clinical Innovation — Singapore Model
- Unlocking the World’s Science: Increasing Access, Adding Visibility, and Aiding Authors

Airport Transportation

For information about transportation from the airport, see www.aaas.org/meetings and select “Travel Information.”

Strategies for International Scientific Cooperation

- Are There Diverse Paths to Progress in Global Science?
- Changing Models of Research in Higher Education: International Perspectives
- Engaging the World Through Science: Science Partnerships in U.S. Foreign Relations
- English-Only Science in a Multilingual World: Costs, Benefits, and Options
- Global Knowledge and Information Commons for Sustainability Science and Innovation
- Global Partnerships for Sustainability Science
- Global Science in the Modern World: Perspectives on the Quantum Universe
- Humanity at the Nexus: Academic Partnerships and Entrepreneurship in Global Health
- Interdisciplinary Research and Integrated Policy-Making for Sustainable Development
- Large-Scale International Collaborations and the Future of Physics
- Universities Without Walls: Endeavors in Global Interinstitutional Education

Technology for a Healthy Future

- Air Pollution and Atherosclerosis
- Bisphosphonate Therapy and Oral Problems, a Two-Edged Sword?
- Crops for Health: Improving the Health-Promoting Properties of Food
- The Father and the Fetus: Revisited
- Health Economic Evaluations of Medical Technologies: Is the Cost Worth the Cure?
- High-Tech, Low-Cost Medicine: A New Paradigm for Global Health
- Modeling the Dynamics of the Drug-Resistant Killers of the 21st Century
- Nanotechnology and Health: What Are the Benefits and Risks?
- A New Generation of Studies To Unravel the Genetic Components of Cardiovascular Diseases
- Progress in Cancer Prevention
- The Science Behind Consumer Product Safety Testing: New Directions
- Systems Biology: Hype or Hope in Drug Design?



World Security and Stability

- Atomic Detectives: Nuclear Forensics and Combating Illicit Trafficking
- Biometrics in Border Management: Grand Challenges for Security, Identity, and Privacy
- Global Ecologies of Danger: Living Through Extreme Times
- Nuclear Forensics and Global Nuclear Deterrence
- Radiation Detectors for Global Security: The Need for Science-Driven Discovery
- Technologies for Open Source Intelligence: Staying Ahead of the Game
- Terrorist Threats to the United States

PHOTO OF RESEARCHER COURTESY OF USDA.

Students: Take the freeway to Boston

Attend the meeting for free ... volunteer as a session aide.

Check out what you'll get if you volunteer:

- A free subscription to *Science* Online
- Free access to the Career Resource Center
- Free meeting registration

For more information:

www.aasmeeting.org/student



Discover the Power of Networks

Start your own global conversations

Engage in powerful networking opportunities. Hear and discuss the latest advances in scientific research and technology.

Understanding Obesity and Childhood Nutrition: A Special AAAS Public Engagement Event

Teachers, school health professionals, parents, students, scientists, and the public are cordially invited to take part in a free town hall-style event on understanding the science behind obesity and childhood nutrition. The town hall will explore key questions, including:

- › Is it the fat, the carbohydrates, or the calories?
- › What does science tell us about children's nutritional needs worldwide?
- › Is there enough time in the school day for exercise?
- › How can nutrition instruction fit into the K-12 science curriculum?
- › What roles can communities, schools, culture, and people play in addressing the problem of childhood obesity?

Program updates and more information will be available at www.aaas.org/obesity.

2008 Forum for School Science Programs that Create a New Science Professional: The Ph.D. as Public Educator

What do Georges Charpak, Russell Hulse, Leon Lederman, and Carl Wieman have in common aside from physics and the Nobel Prize?

All are research scientists who are engaged in K-16 science education: Charpak designed La Main à la Pâte, a hands-on teaching method for primary grade students. Hulse served as a visiting professor of physics and science and mathematics education at University of Texas at Dallas. Lederman created the Illinois Science and Math Academy (one of many things). Wieman moved to the University of British Columbia to focus on improving undergraduate physics education.

What motivates science professionals to get involved in science education and to engage in collaborations with an individual teacher, a school, a school system, or a science organization in the community? The 2008 Forum for School Science will:

- › Describe selected collaborations and partnerships between universities and school systems,
- › Provide steps for developing and sustaining the partnerships,
- › Describe the value added for the institutions and individuals involved, and
- › Offer data and analyses from projects and outside evaluators on the effectiveness of the program and the impact on graduate students, teachers, the universities, and the school systems.

The Forum will highlight programs that build partnerships between institutions of higher education and school systems to promote improvements in science, technology, engineering, and mathematics education, and engages a new generation of scientists to communicate their research to the public.

Managing Threats to Marine Ecosystems

Organized by: Larry Crowder, Duke University, Beaufort, N.C.

This two-day seminar focuses on threats to marine ecosystems, first describing the location and magnitude of those threats based on new spatially-explicit analyses. New sensing technologies and new analytical tools map the effects of human activities on marine resources as well as collateral damage to habitats and non-target species.

Because of these new place-based approaches, management efforts can be focused where they are likely to make a difference. Valuation of ecosystem services allows scientists and managers to examine the utility of various management approaches, including marine reserves, to protect ecosystem functioning and resilience.

Attendees will hear about a variety of new discoveries and novel methodologies that will fuel the development of marine ecosystem-based management.

Discount Hotel Rates

AAAS has negotiated special rates for AAAS Meeting attendees. For rates and details, visit www.aaas.org/meetings and click on "Hotel Reservations." Find out why it pays to book a room through AAAS.



Broaden Your Reach

If your organization is looking to make a strong impression on a large scientific, technological, and engineering audience, consider exhibiting or sponsoring at the 2008 AAAS Annual Meeting in Boston. Join a list of world-class sponsors, supporters, and exhibitors.

AAAS wishes to thank the following sponsors and supporters:

Presenting Sponsor



SUBARU

P&G beauty



L'ORÉAL



CALL YOUR VIDEO PROVIDER
FOR MORE INFORMATION



THE  KAVLI PRIZE



Johnson & Johnson
PHARMACEUTICAL RESEARCH
& DEVELOPMENT, L.L.C.

SUPPORTERS: Argonne National Laboratory and Yomega

In addition generous funding for AAAS Awards is provided by Johnson & Johnson Pharmaceutical Research & Development, L.L.C. and Affymetrix.

EXHIBITORS (as of 1 October)

Academia Book Exhibits
American Mathematical Society
Baden-Württemberg International
Basic Books
Brookhaven National Laboratory
Council for International Exchange of Scholars
ESO – European Organization for Astronomical Research in the Southern Hemisphere
EurekAlert!
European Commission, DG Research
European Molecular Biology Laboratory
EuroScience
Hokkaido University
Institute of Physics Publishing
Irish Universities Association
John Templeton Foundation
Marine Conservation Alliance
Massachusetts Institute of Technology

NASA Earth Systems Science – Data and Services
National Aeronautics and Space Administration
National Center for Science Education
National Center for Supercomputing Applications
National Institute of Standards and Technology
National Oceanic and Atmospheric Administration
National Science Digital Library
National Science and Engineering Research Council of Canada
National Science Foundation
New Scientist/Reed Business Information
Oak Ridge Associated Universities
Oak Ridge National Laboratory
Penguin Group (USA)

Proceedings of the National Academy of Sciences
Prometheus Books
RIKEN, Japanese Research Institute
Science
The Science Channel
Subaru of America Inc.
U.S. Civilian Research and Development Foundation
U.S. Department of Science, Genomes to Life Project
U.S. Department of Science, ITER Project
U.S. Department of Science, Retina Project
U.S. Department of Science, Science.gov
U.S. Department of Science, Workforce Group
U.S. Environmental Protection Agency
University Corporation for Atmospheric Research

For more information:

Contact: Jill Perla
AAAS Meetings Department
Direct Dial: 202-326-6736
E-mail: jperla@aaas.org



ADVANCING SCIENCE. SERVING SOCIETY