

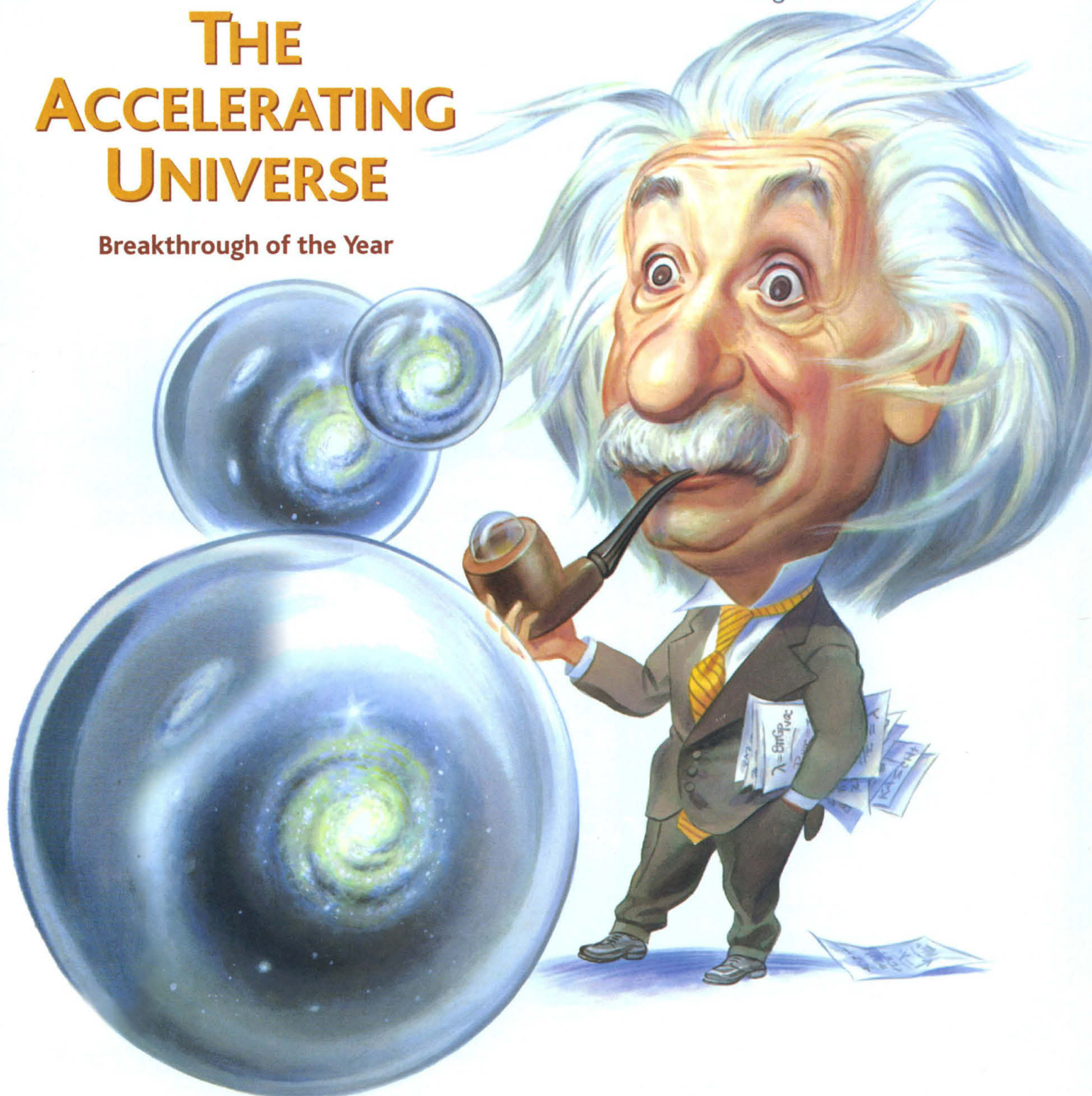
Science

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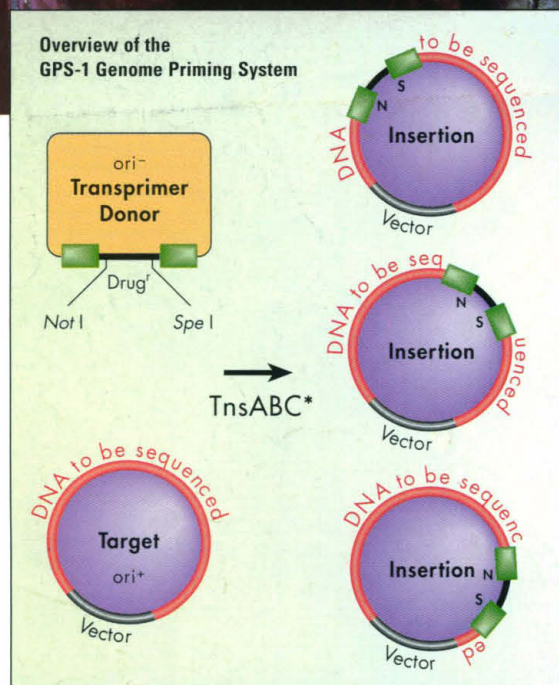
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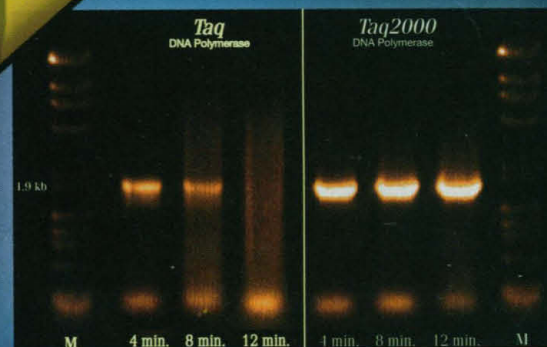
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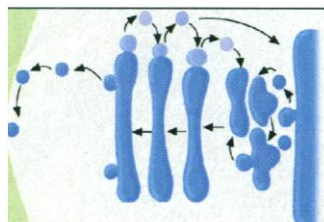
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Traffic flows in the Golgi

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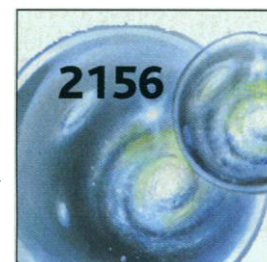


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COVER Einstein watches in surprise as a universe expands exponentially, its galaxies rushing apart ever faster. Evidence for an accelerating universe, the Breakthrough of the Year for 1998, resurrects Einstein's discarded idea of an energy called lambda, or λ , which counteracts gravity and pushes space apart. See the Breakthrough of the Year section beginning on p. 2156 and the Editorial on p. 2193. [Illustration: John Kascht]

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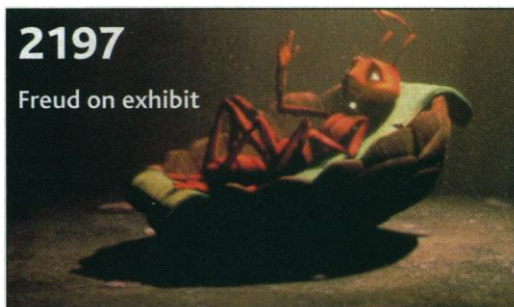
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GWHIZ

Although it has been about 200 years since Cavendish first determined the gravitational constant G , most experiments have used a similar technique: A torsion balance measurement of the restoring force in a fiber between two large masses. In recent experiments by various groups, the systematic errors inherent in these measurements have resulted in scatter in the value for G varying by up to 40 times their individual errors. Schwarz *et al.* (p. 2230; see the news story by Kastenbaum) have been able to reduce or remove these systematic errors by using a different experimental setup: Laser interferometry is used to track a free-falling body under the influence of a nearby mass.

WARM AT THE TOP

The climate during the Late Cretaceous was anomalously warm at times; dinosaurs could be found in Antarctica, and the Arctic region contained abundant plants (see the Perspective by Huber). Tarduno *et al.* (p. 2241) describe a vertebrate fossil assemblage from Axel Heiberg Island in the high Canadian Arctic. This assemblage includes fish, turtles, and champsosaurs, a large, nonmigratory crocodile-like predator. The assemblage implies that polar temperatures were high (perhaps exceeding 14° Celsius on average) about 92 to 86 million years ago, a period that followed the occurrence of extensive global basaltic volcanism.

BY LAND AS WELL AS BY SEA

A series of abrupt climate events punctuated the transition from the ice age to the Holocene climate in the North Atlantic region, including cooling in the Younger Dryas and Preboreal Oscillation. It has been difficult to recognize this sequence elsewhere, particularly in terrestrial records, and thus the global extent of these events has been uncertain. Yu and Eicher (p. 2235) now report evidence for this sequence in lake sediments in Ontario, Canada, further within the interior of North America.

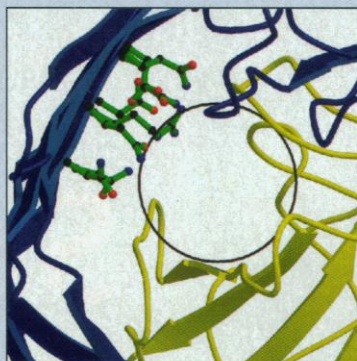
ROUND AND ROUND

Chiral molecules are characterized by an optical rotation angle, the angle by which plane-polarized light is rotated when it passes through a solution of chiral molecules. Exactly how this angle arises from the molecular conformation and chemical bonding in the molecule has

been difficult to identify. Kondru *et al.* (p. 2247) have developed a quantitative method for computing individual atomic contributions to the optical rotation angle. The method provides insights into how molecular geometry, substituents, and chemical bonding can affect the optical rotation angle.

INSIDE SCOOP ON IRON

As an essential constituent of many enzymes, iron is avidly sought and sequestered by microorganisms. Siderophores are small secreted molecules that chelate iron in a bioavailable form. Ferguson *et al.* (p. 2215; see the Perspective by Braun) present the crystal structure at 2.5 angstroms of



the integral membrane protein FhuA from *Escherichia coli*. This protein mediates the energy-dependent transport of the iron-containing siderophore across the outer membrane. FhuA exhibits a remarkable cork-in-a-bottleneck conformation, and the structure of the protein in complex with its substrate reveals how subtle deformations of the cork translocate the iron chelate from the extracellular medium into the periplasmic space.

STRETCH AND CHANGE THE CHANNEL

The energy for regulating the downhill flow of inorganic ions across the cellular membrane is usually obtained chemically (opening an ion channel in response to binding of a neurotransmitter) or electrically (opening in response to a change in the transmembrane potential). Chang *et al.* (p. 2220) present the crystal structure of an ion channel that is regulated mechanically by lateral stretching of the cellular membrane. In the closed state, the

channel consists of 10 helices, contributed as pairs from five identical subunits. A funnel-shaped pore is closed off near the cytoplasmic surface, and the suggested mechanism of energy transduction involves an outward displacement of the inner helix of each pair.

ONE WAY TRIP

Auxins, hormones that regulate many developmental processes in plants, are transported from the tip of the plant to other tissues. Continuing on hypotheses first proposed by Darwin, researchers have long been in search of the molecules responsible for the directed transport. Gälweiler *et al.* (p. 2226; see the Perspective by Jones) have now cloned the *AtPIN1* gene from *Arabidopsis*. Mutants defective in PIN1 are deficient in auxin transport. The protein product, whose predicted sequence shows similarity to bacterial carrier proteins, is located at the basal ends of cells involved in auxin transport, thus providing insight into the molecular basis of unidirectional auxin transport.

THE WORM GETS THE BIRD

Population cycles are a major theme in ecology, but definitive identification of their causes remains problematic. Now Hudson *et al.* (p. 2256) describe the interaction behind one celebrated cycle, namely, the regular crashes in numbers of red grouse in the north of England. Experimental reduction in the burden of a nematode worm in the birds can repeatedly prevent the decline in numbers, demonstrating that a single trophic interaction can induce regular fluctuations.

SLEEPING TO REMEMBER

Can't quite name that catchy tune you heard? A good night's sleep may help you remember. Dave *et al.* (p. 2250; see the news story by Barinaga) recorded neuronal activity in the nucleus robustus archistriatalis (RA) of zebra finches during waking and sleeping periods. The RA area lies at the beginning of the motor pathway that supports singing. The RA neurons responded more strongly to the broadcast of a bird song when the bird was asleep or anesthetized than awake. This enhanced responsiveness was reduced by infusion of the neuromodulator norepinephrine into the brain area that provide input to the RA and suggests a mechanism by which auditory information might be consolidated as a function of wake-sleep state.

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THIS WEEK IN SCIENCE

CONTINUED FROM PAGE 2149

NUTRIENT MICROPATCHES IN THE SEA

Aquatic microbial ecosystems are generally assumed to function within a homogeneous environment in which nutrient dispersal is virtually instantaneous. Blackburn *et al.* (p. 2254) show that this is not so: Patches of nutrients, related to the release of fresh dissolved organic matter, form through the clustering of chemotactic bacteria. Simulations reveal that chemotaxis confers a significant growth advantage to bacteria, thus explaining why the phenotype is present in this environment.

ASTHMA VIA INTERLEUKIN-13

Allergic asthma is becoming more prevalent—it is estimated that 15 million people in the United States alone have the condition. Animal models have provided insights into the immunologic elements that set up the condition, such as a type 2 T helper cell response and the production of interleukin-4 (IL-4) and IL-5. However, it is not clear what causes the acute reaction—airway hyperresponsiveness and severe mucus secretion, the symptoms that can lead to asphyxiation. Grünig *et al.* (p. 2261) and Wills-Karp *et al.* (p. 2258) have found that, in the mouse model of asthma, cytokine IL-13, working through activation of the α subunit of the IL-4 receptor, induces those symptoms; blocking IL-13 also blocked the symptoms. This work suggests that reagents that inhibit IL-13 action have potential therapeutic benefits (see the news story by Vogel).

T CELLS ON

T cells become activated after they meet their antigen, but the most efficient and persistent signaling requires costimulation of a T cell needs through another receptor, such as CD28. Wülfing and Davis (p. 2266) determined that only when the

T cell antigen receptor (TCR) of T cells binds antigen while simultaneously receiving a costimulatory signal, do other proteins that are linked to the actin cytoskeleton move to the TCR complex. This costimulation-dependent cellular reorganization relies upon myosin motors and may be a key component of the costimulatory effect.

T CELLS OFF

T cells not only can be activated, but also must be turned off or the organism runs the risk of rampant autoimmunity, as is the case in mice genetically deficient in the protein CTLA-4. Lee *et al.* (p. 2263) determined the stage of the activation process that is affected by CTLA-4. CTLA-4 complexes with a phosphatase, SHP-2, and was found to bind to and dephosphorylate the ζ chain of the T cell antigen receptor. This direct action at the "source" of the activation signal implies that the TCR signal may be thwarted before the cell is committed to proliferate.

COCAINE AND CREB

Psychoactive drug use can cause permanent molecular adaptations of neurons in the brain. Carlezon *et al.* (p. 2272) investigated a sequence of events in cells of the nucleus accumbens after exposure to cocaine. Chronic cocaine is known to increase adenosine 3',5'-monophosphate (cAMP) formation and subsequently increase activity of cAMP-dependent protein kinase A (PKA). These events in turn increase phosphorylation of the transcription factor CREB (cAMP responsive binding element protein). The authors used virus-induced transient overexpression of normal CREB and a defective mutant to show that CREB effects the expression of dynorphin. Dynorphin is a well-known endogenous ligand for κ -opioid receptors that are involved in the valence (reward versus aversion) of cocaine action.

TECHNICAL COMMENT SUMMARIES

The Hippocampus and Human Navigation

E. A. Maguire *et al.* (Reports, 8 May, p. 921) investigated "the neural basis of navigation by humans ... with functional neuroimaging of brain activity during navigation in a familiar, yet complex virtual reality town." One finding was that accurate navigation was associated with activation of the right hippocampus.

I. Fried comments that such activation is "primarily outside the hippocampus" according to the figures and stereotactic coordinates provided in the report. He notes that other recent studies have found such activity to be associated with the *parahippocampus*.

In response, Maguire discusses the brain coordinate system and template used in the report and provides a figure showing "the location of the peaks of activity for the two relevant activations," which falls within "the subicular regions of the hippocampal formation."

The full text of these comments can be seen at www.sciencemag.org/cgi/content/full/282/5397/2151a

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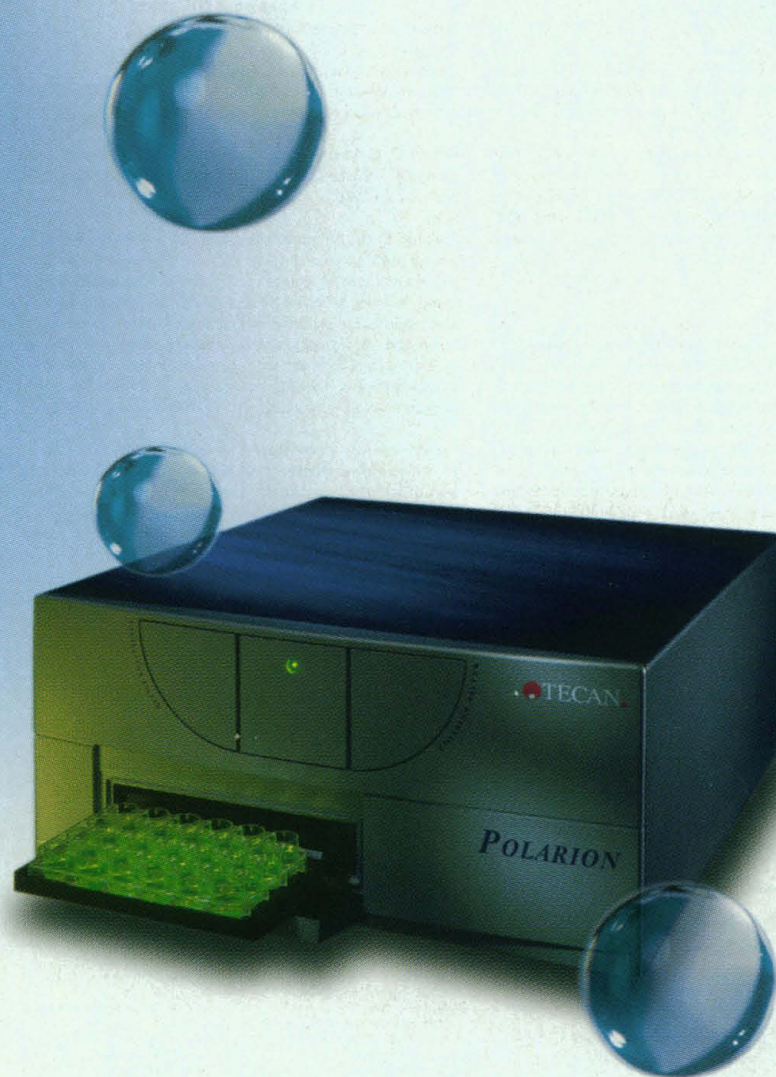
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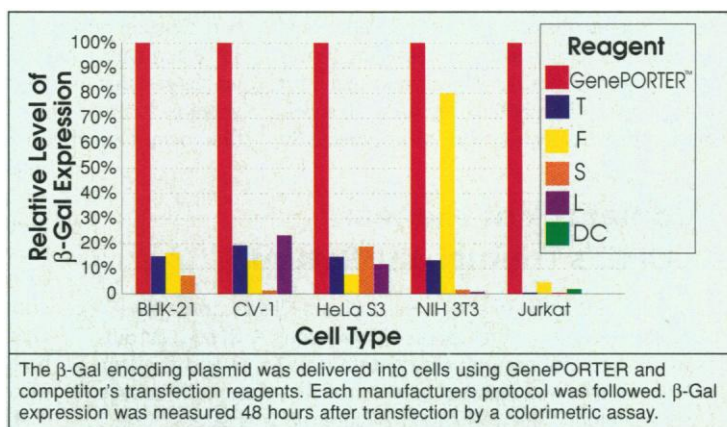
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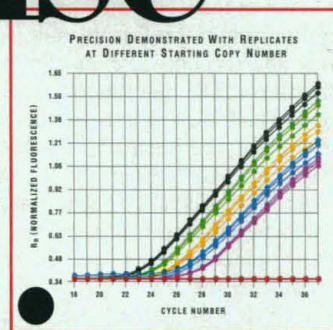
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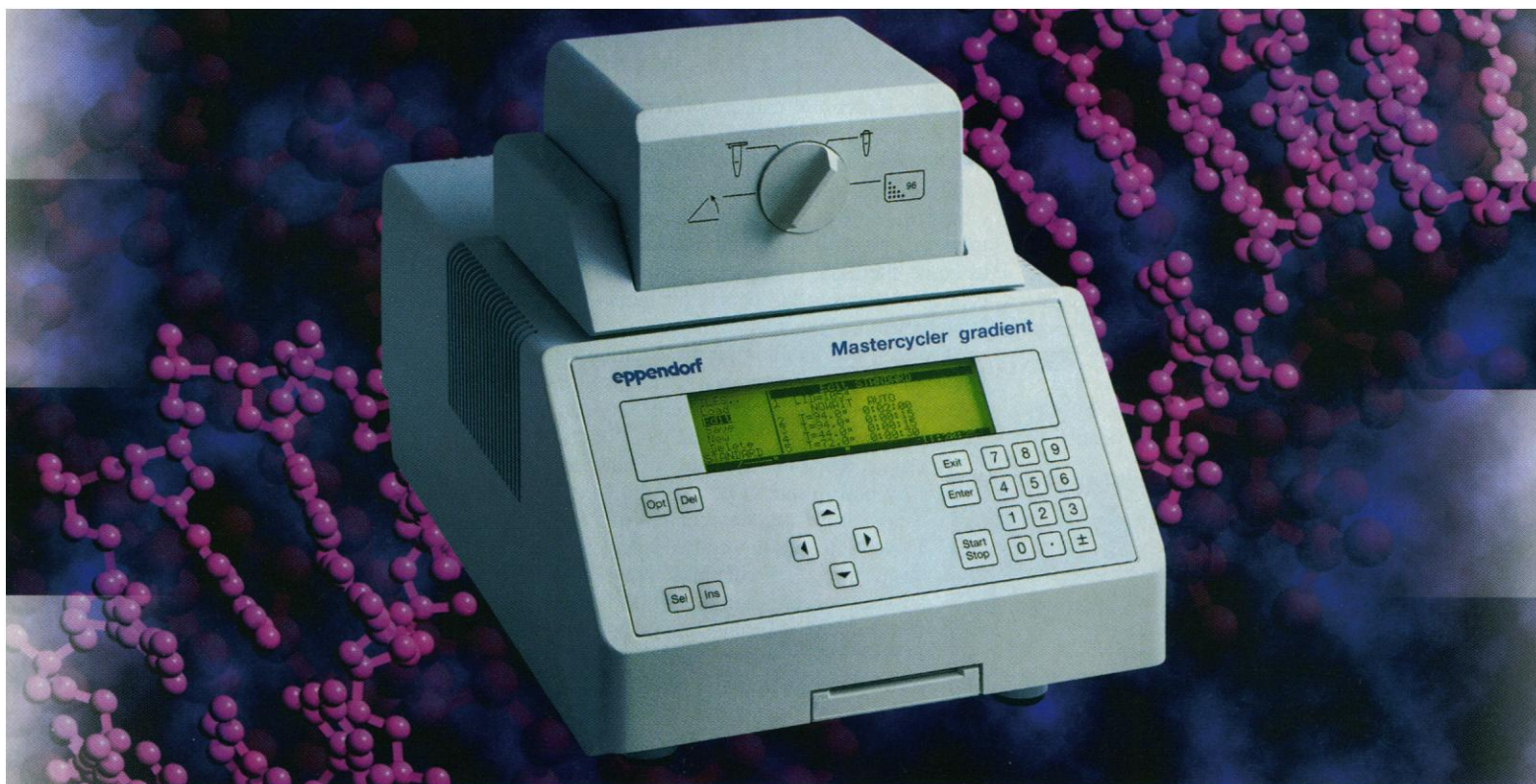
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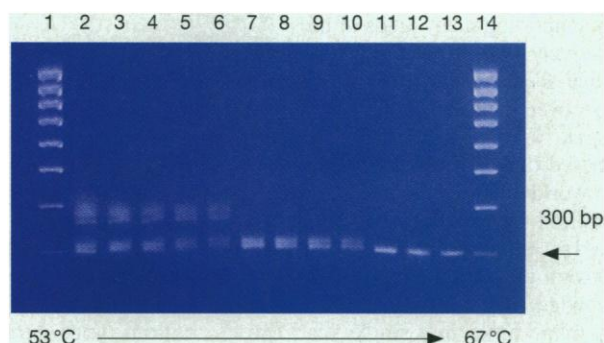
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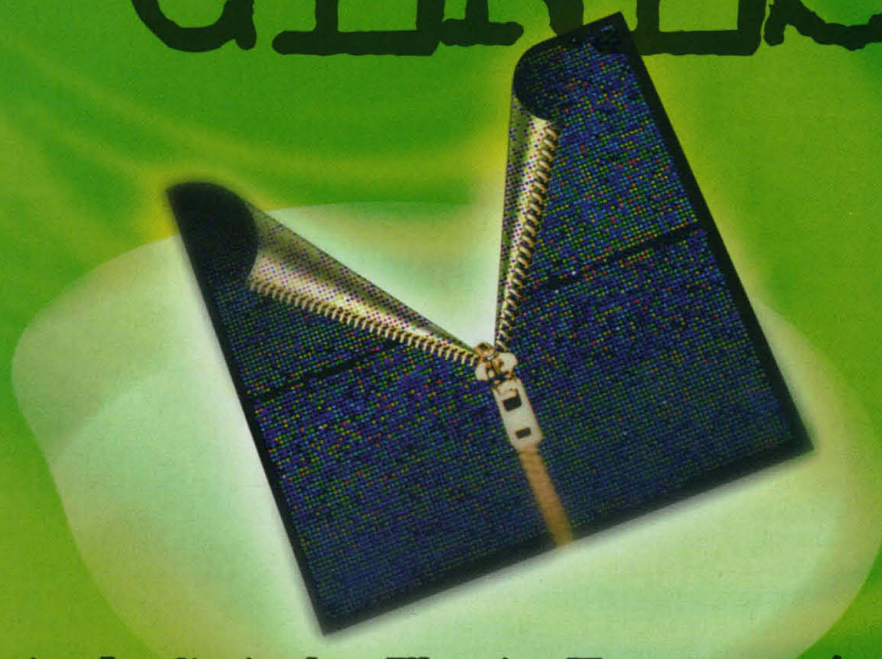


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ANNUAL MEETING & SCIENCE INNOVATION EXPOSITION

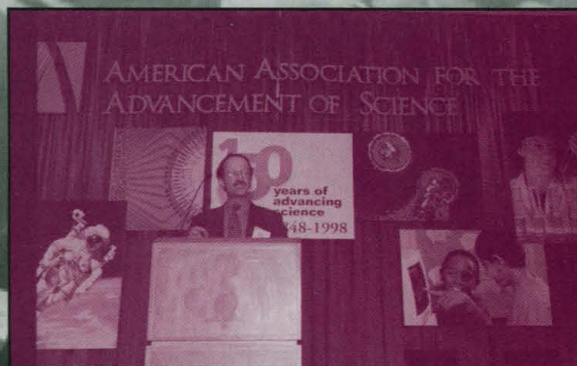


January 21–26, 1999
Anaheim, California

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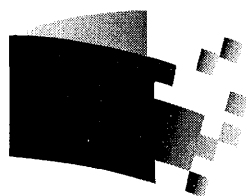
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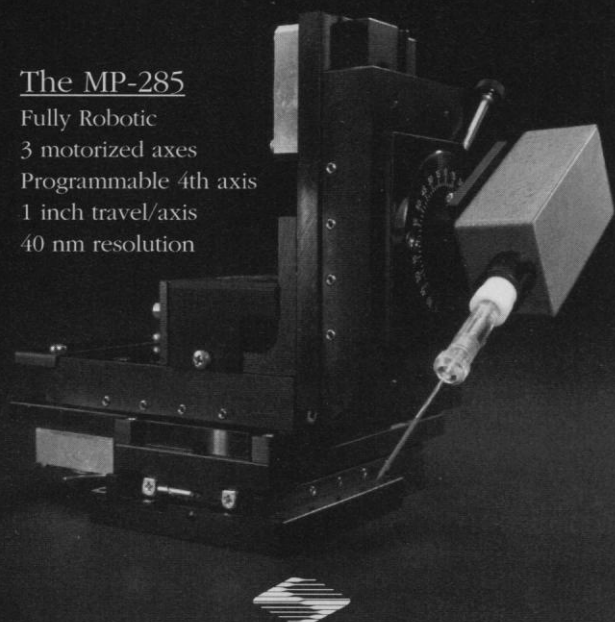
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Circle No. 14 on Readers' Service Card

THE CANON NATIONAL PARKS SCIENCE SCHOLARS PROGRAM

"Creating the next generation of environmental scientists"

A collaboration among
Canon U.S.A., Inc.
National Park Service
National Park Foundation
American Association for the Advancement of Science

The Canon National Parks Science Scholars Program will award scholarships to eight doctoral students in 1999. Each student selected will receive \$25,000 per year for up to three years to conduct research in the national parks. The Program is underwritten by Canon U.S.A., Inc.

The 1999 competition will focus on four research topics within the biological, physical, social and cultural sciences. The research topics are of critical importance to the management of the National Park System and selected by the National Park Service. Students applying for 1999 scholarships must submit dissertation proposals that address these topics.

For an application and guidelines, contact Dr. Gary Machlis, Program Coordinator, Canon National Parks Science Scholars Program, Natural Resource Stewardship and Science, National Park Service, 1849 C Street, NW (MIB 3127), Washington, DC 20240, email gmachlis@uidaho.edu or visit <http://www.nps.gov/socialscience/waso/acts.htm>.

Applications are due June 15, 1999. Winners will be announced shortly after August 15, 1999.

Request for Proposals

High-throughput Screening and Combinatorial Chemistry Approaches for Cystic Fibrosis Drug Discovery

Application Receipt Date: Open

Developments in the understanding of the cystic fibrosis (CF) basic defect and the role of the CF gene product, CFTR, have enabled scientists to develop strategies for new therapies. The Cystic Fibrosis Foundation (CFF) is soliciting proposals to utilize the growing body of knowledge about CF to develop systems that rapidly discover chemical compounds which correct the function of CF cells. This will be achieved by using the technologies of high-throughput screening (HTS) and combinatorial chemistry (CC).

The CFF will consider proposals for review that address the following issues, but are not limited to:

- developing miniaturization technologies, indicator dyes, marker proteins, cell systems, and related technologies to facilitate the development of HTS technologies related to CF drug development;
- furnishing potential therapeutic agents to evaluate as potential lead compounds for CF drug development;
- creating HTS facilities that serve as resources for evaluating prospective chemical agents resulting from combinatorial chemistry or other entities for evaluation and;
- developing chemical derivatives of existing lead compounds for consideration as candidate drugs.

The application of HTS and CC to develop new anti-*Pseudomonas aeruginosa* drugs will be considered.

Review and Award: The maximum amount awarded will be \$1.5 million over two years. Each application must contain "milestone achievement objectives" and the appropriate timetable for completion of each. Continued funding for the project will be, in part, based upon milestone attainment.

Submission: An original, plus 20 copies, must be sent to the CFF, Attn: Office of Grants Management, 6931 Arlington Road Bethesda, MD 20814 (301) 951-4422.



Circle No. 40 on Readers' Service Card

See You in Anaheim!

January 21-26, 1999 • Anaheim, California

Plenary Lectures

SEE INSIDE

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Anaheim Hilton and Towers
Anaheim Marriott Hotel

**See Page 12
for Special
On-Site
Registration
Discounts**

Thursday, January 21

4:30 pm

Student Science Convocation

Science displays from local schools and posters from the American Junior Academy of Science (AJAS)

6:30 pm

Keynote Lecture

Eric Haseltine

Walt Disney
Imagineering
*Technological
Innovation in
the Movies:
Achievements and
Challenges*



Friday, January 22

6:30 pm

Science and Technology: Priorities for the 21st Century

MODERATOR

Rita Colwell
National Science Foundation



SPEAKERS

Federico Mayor

U.N. Educational,
Scientific,
and Cultural
Organization
(UNESCO)



Neal Lane

Office of Science
and Technology
Policy



Sir Robert May

Office of Science
and Technology,
U.K.



Saturday, January 23

6:30 pm

AAAS President's Lecture

M.R.C. Greenwood

University of
California-
Santa Cruz

*Science through the
Looking Glass:
Winning the Battles
but Losing the War?*



Sunday, January 24

6:30 pm

Carla Shatz

University of
California-
Berkeley
*Brain Waves and
Brain Wiring*



Monday, January 25

8:00 am

Michael Crichton

Author, Producer



6:30 pm

Bill Nye

KCTS, Seattle
Public Television
*Science Education
and the Media*



Information as of November 17, 1998.
See updates on our web page at:
www.aaas.org/meetings/scope



AMERICAN ASSOCIATION FOR THE
ADVANCEMENT OF SCIENCE

Topical Lectures

Friday, January 22

8:00am-8:45am

William G. Bowen

Andrew W. Mellon
Foundation

*Choosing on the Merits: The
Relevance of Race*



Nat. Civ. Serv. (Savannah, NY)

8:00am-8:45am

Marcia K. McNutt

Monterey Bay Aquarium
Research Institute
Exploring the Oceans



Georg. P. (San Francisco, CA)

12:00noon-1:30pm

Warren Washington,

National Center for
Atmospheric Research,
(Moderator)

**Ralph J. Cicerone and
F. Sherwood Rowland**
University of California-
Irvine

*Global Change During the
20th Century: A Period of
Growing Human Influence*



Cal. Inst. (Irvine, CA)



Cal. Inst. (Irvine, CA)



Cal. Inst. (Irvine, CA)

1:30pm-2:15pm

Raymond Y. Chiao

University of California-
Berkeley

*Experimental Evidence for the
Faster-than-Light Tunneling of
Photons*



Cal. Inst. (Berkeley, CA)

1:30pm-2:15pm

Paul Alan Cox

National Tropical
Botanical Garden

*Conservation in Jurassic Park:
Endangered Plants and the
National Tropical Botanical Garden*



Mark. Philbeck, (NYU)

1:30pm-2:15pm

Sharon L. Hays

Office of Representative
Vernon J. Ehlers
*The Changing Graduate
School Environment*



Mark. Philbeck, (NYU)

Saturday, January

8:00am-8:45am

Owen Gingerich

Harvard-Smithsonian
Center for Astrophysics
*Why Is the Day 24 Hours,
and When Will the
Millennium Begin?*



J. Boyer

8:00am-8:45am

Peter Ladefoged

University of California-
Los Angeles
*Sounds of the World's
Languages*



J. Boyer

8:00am-8:45am

Jared M. Diamond

University of California-
Los Angeles School of
Medicine

*A Short History of Everybody
for the Last 13,000 Years*



J. Boyer

1:30pm-2:15pm

Francisco J. Ayala

University of California-
Irvine

*Darwin's Devolution: Design
without Designer*



Cal. Inst. (Irvine, CA)

1:30pm-2:15pm

Claire Max

University of California,
Lawrence Livermore
National Laboratory
*The Promise of Adaptive
Optics: Earth-Based Telescopes See As
Never Before*



Cal. Inst. (Livermore, CA)

1:30pm-2:15pm

Mike McCormack

The Institute for Science
and Society
*21st Century Energy Resources:
Avoiding Crises in Electricity
and Transportation*



J. Boyer

Sunday, January 24

8:00am-8:45am

Claudia Henrion

Dartmouth College
*Women in Mathematics:
The Addition of Difference*



J. Boyer

8:00am-8:45am

Frans B. M. de Waal

Emory University
Natural Conflict Resolution



Cal. Inst. (Irvine, CA)

12:30pm-1:15pm

Rita Colwell

National Science
Foundation
The New Age of Exploration



Cal. Inst. (Irvine, CA)

1:30pm-2:15pm

Hiroo Kanamori

California Institute of
Technology and

Paul Silver
Carnegie Institution of
Washington

*The Earthquake Prediction
Problem: How We Can Make
Progress*



Cal. Inst. (Irvine, CA)



Cal. Inst. (Irvine, CA)

**1999 George Sarton Award Lecture
in the History and Philosophy of
Science**

1:30pm-2:15pm

Mary Jo Nye

Oregon State University
*What Price Politics?: Scientists
and Political Controversy*



Cal. Inst. (Irvine, CA)

**1999 John P. McGovern Award
Lecture in the Behavioral Sciences**

1:30pm-2:15pm

Richard F. Thompson

University of Southern
California
A Memory Trace Found?



Cal. Inst. (Irvine, CA)

Monday, January 25

2:00pm-2:45pm

Peter Schröder

California Institute of
Technology
*Bringing Geometric Modeling
to the Desktop: From 3D
Scanning at Home to Transmission over the
Internet*



Cal. Inst. (Irvine, CA)

SCIENCE INNOVATION TOPICAL LECTURES



Friday, January 22

8:00am-8:45am

Susan Lindquist

University of Chicago
*Mad Cows and Psi-chotic
Yeast: An Expansion of the
Prion Hypothesis*



1:30pm-2:15pm

David Baltimore

California Institute of
Technology
Designing an AIDS Vaccine



Saturday, January 23

8:00am-8:45am

Sharon R. Long

Stanford University/
HHMI
*Signal Exchange and Signal
Transduction in Plant-Bacteria
Symbiosis*



1:30pm-2:15pm

Thomas D. Schneider

National Cancer Institute,
National Institutes of
Health
*Molecular Information Theory:
From Clinical Applications to Molecular
Machine Efficiency*



Sunday, January 24

1:30pm-2:15pm

Dennis Burton

Scripps Research Institute

Monday, January 25

2:00pm-2:45pm

Stephen L. Mayo

California Institute of
Technology/HHMI
Protein Design



Cal. Inst. (Irvine, CA)

* = invited, not confirmed

Daily Timetable

January 21–26, 1999

	Thursday, 21	Friday, 22	Saturday, 23	Sunday, 24	Monday, 25	Tuesday, 26
Morning	San Andreas Fault Field Trip 7:30am–5:30pm <i>Hilton</i> Public Science Day* 8:00am–2:00pm <i>Discovery Science Center</i>	Meeting Registration 7:00am–7:00pm <i>Hilton</i> SI Topical Lecture 8:00am–8:45am <i>Hilton</i> Topical Lectures 8:00am–8:45am <i>Hilton/Marriott</i> Concurrent Sessions 9:00am–12:00noon <i>Hilton/Marriott</i>	Meeting Registration 7:30am–5:00pm <i>Hilton</i> SI Topical Lecture 8:00am–8:45am <i>Hilton</i> Topical Lectures 8:00am–8:45am <i>Hilton/Marriott</i> Genome Seminar 9:00am–5:30pm <i>Hilton</i> Concurrent Sessions 9:00am–12:00noon <i>Hilton/Marriott</i> General Poster Session and Student Award Competition 9:30am–2:30pm <i>Marriott</i>	Meeting Registration 7:30am–5:00pm <i>Hilton</i> Topical Lectures 8:00am–8:45am <i>Hilton/Marriott</i> Genome Seminar 9:00am–5:30pm <i>Hilton</i> Concurrent Sessions 9:00am–12:00noon <i>Hilton/Marriott</i> Career Workshops 9:00am–4:30pm <i>Marriott</i> Exhibition 10:00am–3:00pm <i>Hilton</i>	Meeting Registration 7:30am–5:00pm <i>Hilton</i> Special Plenary Lecture Michael Crichton 8:00am–9:00am <i>Hilton</i> Exhibition 9:00am–2:00pm <i>Hilton</i> Concurrent Sessions 9:30am–12:30pm <i>Hilton/Marriott</i> Career Workshops 9:00am–4:00pm <i>Marriott</i> Forum for School Science 9:30am–6:30pm <i>Marriott</i>	Meeting Registration 7:30am–12 noon <i>Hilton</i> Forum for School Science 8:30am–12:30pm <i>Marriott</i> Career Workshops 9:00am–12:00noon <i>Marriott</i> Science Career Fair 11:00am–4:00pm <i>Marriott</i>
Afternoon	Meeting Registration 2:00pm–7:00pm <i>Hilton</i> Student Science Convocation and AJAS Posters 4:30pm–6:30pm <i>Marriott</i>	SI Topical Lecture 1:30pm–2:15pm <i>Hilton</i> Topical Lectures 12:00noon–1:30pm 1:30pm–2:15pm <i>Hilton/Marriott</i> AJAS Oral Presentations 1:30pm–5:30pm <i>Hilton</i> Concurrent Sessions 2:30pm–5:30pm <i>Hilton/Marriott</i> Exhibition 4:00pm–6:30pm <i>Hilton</i>	Exhibition 10:00am–3:00pm <i>Hilton</i> Exhibitor Workshops 12:30pm–2:00pm <i>Hilton</i> Awards Ceremony 12:15pm–1:15pm <i>Hilton</i> SI Topical Lecture 1:30pm–2:15pm <i>Hilton</i> Topical Lectures 1:30pm–2:15pm <i>Hilton/Marriott</i> Concurrent Sessions 2:30pm–5:30pm <i>Hilton/Marriott</i>	Exhibitor Workshops 12:30pm–2:00pm <i>Hilton</i> Topical Lectures 1:30pm–2:15pm <i>Hilton/Marriott</i> SI Topical Lecture 1:30pm–2:15pm <i>Hilton</i> Concurrent Sessions 2:30pm–5:30pm <i>Hilton/Marriott</i>	SI Topical Lecture 2:00pm–2:45pm <i>Hilton</i> Topical Lectures 2:00pm–2:45pm <i>Hilton/Marriott</i> Concurrent Sessions 3:00pm–6:00pm <i>Hilton/Marriott</i> Forum/Education Poster Session 4:30pm–6:30pm <i>Marriott</i>	
Evening	Opening Ceremony and Keynote Lecture Eric Haseltine 6:30pm–8:00pm <i>Marriott</i>	Opening Night Reception 5:00pm–6:30pm <i>Hilton</i> Plenary Panel S&T: Priorities for the 21st Century 6:30pm–8:00pm <i>Marriott</i>	President's Lecture MRC Greenwood 6:30pm–7:30pm <i>Marriott</i> President's Reception 7:30pm–8:30pm <i>Marriott</i>	Plenary Lecture Carla Shatz 6:30pm–7:30pm <i>Marriott</i>	Plenary Lecture Bill Nye 6:30pm–7:30pm <i>Marriott</i>	

* by invitation only

Friday at-a-Glance

January 22

The Changing Environment of Higher Education

Information Technology and the Future of Higher Education

9:00am-12:00noon

Preparing University Faculty to Teach While Educating Future Teachers

2:30pm-5:30pm

Computers, the Internet, and Information

Internet Research as an Experimental Science

9:00am-12:00noon

Massive Data Sets in Mathematics, Science, and Technology

2:30pm-5:30pm

Policing the Internet: Cybercensorship and Its Potential Impact

2:30pm-5:30pm

Environment, Food, and Natural Resources

Science, Technology, and Food Safety Policy

9:00am-12:00noon
2:30pm-5:30pm

Diseases of the Ocean: A New Environmental Challenge

2:30pm-5:30pm

Geology, Geography, and History

Emergence of "Modern" Human Form: Archaeological, Morphological, and Molecular Perspectives

9:00am-12:00noon

Southern California Indian Languages at the Millennium

2:30pm-5:30pm

Industry, Engineering, and Innovation

Breaking the University-Industry Technology Transfer Logjam

9:00am-12:00noon

Instability in Earth and Human Systems

The 21st Century Environment: Potential for Human Dominance

2:30pm-5:30pm

Life Science from Cells to the Environment

Towards an Integrative Biology

9:00am-12:00noon

Modeling Evolution

2:30pm-5:30pm

Mathematics and Physical Sciences

Innovations in Mathematics: Historical Perspectives

9:00am-12:00noon

The Wide World of Chemistry

9:00am-12:00noon

Excitement in the Solar System

2:30pm-5:30pm

Medicine and Public Health

Forever Young: Biologic Bases of Postponement of Aging and Death

9:00am-12:00noon

Human Health Risks in the Ocean

9:00am-12:00noon

The Link between Systemic Conditions and Diseases and Oral Health

2:30pm-5:30pm

Neurobiology, Brain, and Behavior

Grammar: What's Innate?

9:00am-12:00noon

Partible Paternity: Matings with Multiple Men Leading to Multiple Fathers Per Child

2:30pm-5:30pm

Science and Society

Successful Children in Risky Environments

9:00am-12:00noon

California 150 Years After the Gold Rush

2:30pm-5:30pm

The Time Squeeze: Work/Family Strategies in the Next Century

2:30pm-5:30pm

Science, Engineering, and Public Policy

UNESCO and Global Science

9:00am-12:00noon

The Precautionary Principle: A Revolution in Environmental Policy-Making?

2:30pm-5:30pm

Science Innovation

Imaging Development: From Single Cells to Complex Organisms

9:00am-12:00noon

Medicine in the 21st Century: Meeting the Genomic Challenge

9:00am-12:00noon
2:30pm-5:30pm

Navigation: How Cells and Organisms Find Their Way

2:30pm-5:30pm

Saturday at-a-Glance

January 23

The Changing Environment of Higher Education

Changing Academic Labor Markets and Careers in Science and Engineering

9:00am-12:00noon

Computers, the Internet, and Information

Virtual Communities

9:00am-12:00noon

On the Unusual Effectiveness of Logic in Computer Science

2:30pm-5:30pm

Education, Entertainment, and Literacy

Adding Public Outreach to Research Agendas

9:00am-12:00noon

National Council of Teachers of Mathematics (NCTM)

Standards 2000 Draft: Reflecting on Progress and Looking Ahead

2:30pm-5:30pm

Science Is Fun!

2:30pm-5:30pm

Environment, Food, and Natural Resources

Global and Local Dimensions of America's Food and Agricultural Systems

9:00am-12:00noon

Water in the West: Investing in Management and Research for the 21st Century

9:00am-12:00noon

Beyond the 100th Meridian— and into the 21st Century: Development, Conservation, and Conflict in the American West

2:30pm-5:30pm

Genome Seminar

Powerful Forces in Small Packages— Harnessing the Microbial World

9:00am-12:30pm

2:30pm-5:30pm

Geology, Geography, and History

Changes in Paleoclimate and Civilization

9:00am-12:00noon

The History of Science and Religion Revisited

2:30pm-5:30pm

Industry, Engineering, and Innovation

Large Hadron Collider: Mega-Science and Mega-Engineering for Everyone

9:00am-12:00noon

Intellectual Capital and Knowledge Management

2:30pm-5:30pm

The International Space Station: Bridging the Earth and the Universe

2:30pm-5:30pm

Instability in Earth and Human Systems

Harmful Algal Blooms: Impacts, Trends, and Current Developments

9:00am-12:00noon

Linking Watershed Nutrients to Hypoxia in the Gulf of Mexico

2:30pm-5:30pm

Life Science from Cells to the Environment

Accelerating Crop Evolution for Greater Productivity and Better Biodiversity Conservation

9:00am-12:00noon

Mathematics and Physical Sciences

Frontiers of the Physical Sciences

9:00am-12:00noon

2:30pm-5:30pm

Mount Wilson Observatory: New Realms in the Cosmos

2:30pm-5:30pm

Medicine and Public Health

The Mathematics of Epidemics and Disease

9:00am-12:00noon

All Creatures Weird and Wonderful: Revolutionary Approaches to Medical Discovery

2:30pm-5:30pm

Neurobiology, Brain, and Behavior

The Nature and Etiology of Specific Language Impairment in Children

9:00am-12:00noon

Cognitive, Linguistic, and Social Consequences of Early Experience: Perspectives from the NICHD Study of Early Child Care

2:30pm-5:30pm

Science and Society

The Metropolis in the Millennium: Integrated Science and Urban Ecosystems

2:30pm-5:30pm

Science, Engineering, and Public Policy

How Will New Accountability Requirements Affect the Environment for Research?

9:00am-12:00noon

Trouble at State: Discarding Science and Technology in Foreign Affairs

9:00am-12:00noon

Science Policy in the Next Millennium: Emerging Issues in Congress

2:30pm-5:30pm

Science Innovation

Confronting the Transplantation Crisis: Tissue Engineering of Vital Organs

9:00am-12:00noon

Ultracold Atoms

2:30pm-5:30pm

Sunday at-a-Glance

January 24

The Changing Environment of Higher Education

Attaining Diversity in University Admissions: The California Experience

9:00am-12:00noon

Computers, the Internet, and Information

The Grand Unified eArchive: Scientific Publishing in the Year 2020

2:30pm-5:30pm

Education, Entertainment, and Literacy

Mathematics through Science in the Middle Grades

9:00am-12:00noon

Portraying Science in the Media: Why the Ambivalence?

2:30pm-5:30pm

Restructuring Pre-College Science: We're Not There Yet

2:30pm-5:30pm

Environment, Food, and Natural Resources

Grazing Animals and the Protection of Rangelands in California

9:00am-12:00noon

Genome Seminar

Powerful Forces in Small Packages – Harnessing the Microbial World

9:00am-12:00noon
2:30pm-5:30pm

Geology, Geography, and History

Using Knowledge to Reduce Earthquake Losses

9:00am-12:00noon

Earthquakes and the Urban Environment

2:30pm-5:30pm

Industry, Engineering, and Innovation

Scientometrics: Recent Advances in Measurement and Application in Industry

9:00am-12:00noon

Intelligent Transportation Systems: Challenges of Implementing a Complex New Technology

2:30pm-5:30pm

Instability in Earth and Human Systems

El Niño 1997-1998: Predictions, Impacts, and Lessons

9:00am-12:00noon
2:30pm-5:30pm

Role of Estuaries in Sustaining Coastal Fisheries: Is There One?

9:00am-12:00noon

Life Science from Cells to the Environment

Genetics and Reproduction: From Mice to Livestock to Humans

9:00am-12:00noon

Alien Invasions!: Impacts and Control of Nonindigenous Species

2:30pm-5:30pm

Mathematics and Physical Sciences

Counting on Justice?: Use and Misuse of Statistics in the Courts

9:00am-12:00noon

Quantum Mechanics Today

9:00am-12:00noon

Before the Beginning

2:30pm-5:30pm

Medicine and Public Health

Conversions of Health Organizations from Nonprofits to For-Profits: Should Anyone Care?

9:00am-12:00noon

Health Care Coverage of Complementary and Alternative Medicine Therapies

2:30pm-5:30pm

Mixed Environmental Hazards and Cancer: Scientific Advances

2:30pm-5:30pm

Neurobiology, Brain, and Behavior

Perception, Illusion, and Brain

9:00am-12:00noon

Neurology of Consciousness and Self

2:30pm-5:30pm

Science and Society

Genetic Discoveries, the Media, and Public Anxiety

9:00am-12:00noon
2:30pm-5:30pm

The New Strategic Philanthropist: Is Science Riding the Wave?

9:00am-12:00noon

Science, Engineering, and Public Policy

Investing in Research: Distributed Science or Elite Science?

9:00am-12:00noon

Democratizing the Use of Science in Policy: Recent Advances

2:30pm-5:30pm

Integration and Synthesis As Scientific Method: Environmental Science and Philosophy

2:30pm-5:30pm

Science Innovation

Windows on the Mind

9:00am-12:00noon

Brain-Immune Connections: From Popular Myth to Hard Science

2:30pm-5:30pm

Monday / Tuesday at-a-Glance

January 25-26

The Changing Environment of Higher Education

Community College, Public, and Private Partnerships for Diversity in the Biotechnology Workforce

9:30am-12:30pm

Computers, the Internet, and Information

Building the Next Generation National Biological Information Infrastructure

9:30am-12:30pm

Science and the Internet: Globalization, Cooperation, and Development

3:00pm-6:00pm

Education, Entertainment, and Literacy

"Yuck, Gross!": What Can Online Deformed Frogs Teach About Science?

9:30am-12:30pm

Environment, Food, and Natural Resources

Genetic Engineering of Food

9:30am-12:30pm

Sustainable Development in China: Near Term Approaches

9:30am-12:30pm

University of California Natural Reserve System: Managing Resources, Preparing for the Future

3:00pm-6:00pm

Values Matter: Environmental Management and Civil Society

3:00pm-6:00pm

Forum for School Science

Science Futures - Education for the New Millennium

9:30am-6:30pm

Geology, Geography, and History

"Writing It Right - Now!":

Problems in the History of Present-Day Science

3:00pm-6:00pm

Boom and Bust in the Geosciences: Implications for the Future

3:00pm-6:00pm

Industry, Engineering, and Innovation

Innovation Patterns: Value in Formulating Company Strategies and Public Policy

9:30am-12:30pm

Issues in High-Tech Startups and Venture Capital

9:30am-12:30pm

Opening Scientific Frontiers?: The Science of Stockpile Stewardship

3:00pm-6:00pm

The University/Industry Interface: Room for Improvements

3:00pm-6:00pm

Instability in Earth and Human Systems

Understanding Land-Use

Change: Cutting Edge Research and Application

9:30am-12:30pm

Life Science from Cells to the Environment

Where Biology and Physics Meet

9:30am-12:30pm

Detecting Gene-Environment Interactions

3:00pm-6:00pm

Homing in on the Magnetic Sense

3:00pm-6:00pm

Mathematics and Physical Sciences

Keys to the Cosmos: The Unification of Particle Physics and Cosmology - History and Prophecy

9:30am-12:30pm

Astrobiology: Understanding Life in the Universe

3:00pm-6:00pm

The Fate of the Universe

3:00pm-6:00pm

Medicine and Public Health

Developing Prescriptions with a Personal Touch: The Human Genome and Medications

9:30am-12:30pm

Neurobiology, Brain, and Behavior

Psychoanalytic and Neuroscientific Perspectives on Dreaming

9:30am-12:30pm

The Biomedical Enhancement of Cognition: Ethical, Legal, and Religious Perspectives

3:00pm-6:00pm

Science, Engineering, and Public Policy

Use and Abuse of Scientific Predictions in Environmental Policy Making

9:30am-12:30pm

Land Use Change and Forestry in the Kyoto Protocol

3:00pm-6:00pm

Science Innovation

Chemistry on the Edge: Interfaces with Biology, Materials, and Chips

9:30am-12:30pm

Diet, Estrogens, Pregnancy, and Breast Cancer: A Complex Controversy

9:30am-12:30pm

Neural Transplantation in Development and Disease

3:00pm-6:00pm

TUESDAY

Forum for School Science

Science Futures - Education for the New Millennium

8:30am-12:30pm

Exhibitor Workshops

The Case for Human Mars Exploration

**Saturday,
23 January
12:30PM–2:00PM**

In order to resolve the issues of past or present life on Mars and to determine the viability of the Red Planet as a future home for life, human explorers are needed. The technology for cost-effective human exploration is now available.

This workshop will discuss how and why humans should explore Mars, and what needs to be done to initiate such a bold program in the near future.

**Presented by
Dr. Robert Zubrin,
The Mars Society**

Frameworks for Responsible Application of Genetic Medicine in Society

**Saturday,
23 January
12:30PM–2:00PM**

The Foundation for Genetic Medicine, Inc. (FGM) Workshop will explore frameworks for responsible introduction and application of new genetic technologies in society. FGM supports "genetic literacy" for informed public discourse and an environment beneficial for improving human health in a socially responsible manner. Genomic research and genetic medicine afford the prospect of improving human health and alleviating human suffering, providing that all the stakeholders' interests and views are considered and respected. The development and introduction

of modern genetic technologies to healthcare must not only consider the ethical, legal and social consequences.

Application of genetic technologies must also consider cultural, religious and social norms and beliefs, the special genetic needs of communities, potential benefits and risks, and a population's role in the development of genetic technologies. The workshop will identify and discuss critical elements and potential objective and subjective evaluation methods for model frameworks.

**Presented by
Stephen J. McCormack,
Erin Williams,
Leslie A. Platt**

Grants Workshop: NCIIA Support for Innovation in Higher Education

**Saturday
23 January
12:30PM–2:00PM**

This presentation will provide a brief overview of The National Collegiate Inventors and Innovators Alliance (NCIIA) focusing on our unique grants program and resources network.

The NCIIA is an interdisciplinary educational alliance founded in 1995 at Hampshire College. Our mission is to nurture a new generation of innovators, by fostering and promoting the teaching of invention, innovation, and entrepreneurship at colleges and universities nationwide.

The NCIIA grants program funds curriculum and program development and independent student projects focusing on commercially directed innovation. The primary mechanism in this effort is the E-Team (the "E" stands for excellence and entrepreneurship). An E-Team is a group of students, faculty and mentoring professionals who pursue the development of an idea or invention with the desired result of licensing of new products, technologies or the startup of entrepreneurial ventures. In the last three years, the NCIIA has awarded over \$1 million in grants to over 40 institutions.

**Presented by
Phil Weilerstein,
NCIIA Program Manager**

*You are cordially invited to attend
the 1999 AAAS Exhibition
Opening Night Reception*

*Friday, January 22
5:00 pm - 6:30 pm*

*Anaheim Hilton and Towers
California Pavilion, 2nd Floor*

Exhibitors

Information as of November 13, 1998

See updates on our web page

www.aaas.org/meetings/scope

Exhibitors At-A-Glance

Bold Text Indicates Sponsorship

A K Peters

Academia Book Exhibits

Academic Press

American Chemical Society,
Education DivisionAssociation of American
University Presses

Brock Optical Inc.

Cambridge University Press

Cricket Magazine Group

Design Science, Inc.

DoD SBIR/STTR Programs

Dorling Kindersley Family
Learning

Ecumenical Roundtable

Foundation for Genetic
Medicine, Inc.

France Edition

The Free Press/Simon and
SchusterW.H. Freeman and
CompanyHarbor Branch
Oceanographic Institution

Harvard University Press

Howard Hughes Medical
InstituteHubble Space Telescope
ProjectInstitute for Scientific
Information (ISI)**International Space
Station**

Island Press

Long Term Ecological
Research Network/
National Center for
Ecological Analysis and
Synthesis

The Mars Society

Merck & Co., Inc.

Metric Program/NIST
Mount Wilson Observatory
NABT/ASM Microbial
Literacy Collaborative

NASA/EOSDIS

NASA-Office of Life &
Microgravity Sciences &
ApplicationsNational Collegiate
Inventors and Innovators
Alliance (NCIIA)National Library of
Medicine**National Science &
Technology Medals
Foundation**National Science
Foundation

Nature America, Inc.

NOAA

Office of Naval Research

Optronics Engineering

Subaru of America, Inc.

Opportunities Available!

Does your organization have a Marketing, Education, or Outreach Department that wants to reach science and engineering professionals of all disciplines?

Let them know the **1999 AAAS Annual Meeting and Science Innovation Exposition** is a great place to do just that!

- Exhibit Hall Booths
- Exhibitor Workshops
- Meeting Sponsorships

Many opportunities still remain! For more information and a prospectus contact:

Ryan Strowger,
AAAS Exhibit Sales Manager
Phone: 202-326-6736
E-Mail: rstrowge@aaas.org

For details about these opportunities visit
www.aaas.org/meetings/scope

FREE EXHIBITION PASS or \$25 DISCOUNT toward On-Site Passport Registration

To redeem this coupon simply complete the on-site registration form and exchange it for your free **"Exhibits Only"** badge at the meeting Registration desk on the 2nd floor of the Anaheim Hilton and Towers, or redeem for **\$25 discount** to apply toward On-Site Regular Passport Registration.*

**The 1999 AAAS Annual
Meeting and Science
Innovation Exposition**

Exhibition Hours:

Friday,	January 22	4:00pm - 6:30pm
Saturday,	January 23	10:00am - 3:00pm
Sunday,	January 24	10:00am - 3:00pm
Monday,	January 25	9:00am - 2:00pm

For Annual Meeting details or for a complete Premeeting Program, please visit **www.aaas.org/meetings/scope** or call the AAAS Meeting Office at (202) 326-6450.

* Offer not valid for any other Registration Category.

SCAD

More program details on the web

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www.aaas.org/meetings/scope

General Information

Reserve Your Hotel Now

Accommodations may still be available at the Anaheim Hilton and Towers and the Anaheim Marriott. To make your reservations* visit our website at www.aaas.org/meetings/scope or call (202)326-6450 for a housing form. *Subject to availability

Discount Air Travel

Save up to 10% on airfares to Anaheim. The following official airlines are offering special discounts on travel to and from the AAAS Annual Meeting in Anaheim:

American Airlines

To make reservations call 1-800-433-1790 and give the agent the following Starfile number 9019UD.

Delta Air Lines

For details and to make reservations call 1-800-241-6760 and refer to File Number 117317A.

Local Transportation

SuperShuttle: 714-517-6600

The Airport Bus: 800-772-5299

DISCOUNT CAR RENTALS

AAAS has negotiated special discounts on car rentals for attendees of the AAAS Annual Meeting. Dollar Rent A Car is pleased to provide the following rates available from January 14–February 2, 1999 at Los Angeles International Airport, John Wayne/Orange County Airport, and the Anaheim Hilton and Towers:

• Economy Car	\$26.00/day	\$143.00/wk
• Compact Car	\$28.00/day	\$154.00/wk
• Intermediate Car	\$30.00/day	\$165.00/wk
• Standard Car	\$34.00/day	\$187.00/wk
• Premium Car	\$39.99/day	\$219.95/wk
• Luxury Car	\$49.99/day	\$274.95/wk
• Minivan	\$39.99/day	\$279.95/wk

These rates include unlimited mileage and 24-hour emergency roadside assistance. There is no extra fee for an additional driver or for renters 21–24 years of age. Rates do not include taxes, surcharges, fuel, or optional coverages.

DOLLAR MAKES SENSE® for AAAS members. Call your professional travel agent or Dollar at 800-800-4000 or visit their website at www.dollar.com. You must mention CD#AA1115 when making reservations.

AAAS is pleased to recognize the National Science and Technology Medals Foundation, Subaru of America, Inc., and International Space Station as Sponsors of the 1999 AAAS Annual Meeting and Science Innovation Exposition



The
NATIONAL
SCIENCE &
TECHNOLOGY
MEDALS
FOUNDATION

*Serving the science & technology communities
so they can provide a better tomorrow.*



INTERNATIONAL
SPACE STATION

1999 AAAS Annual Meeting and Science Innovation Exposition

January 21–26, 1999 • Anaheim, California

On-Site Registration Form

1. Registrant Information (Please type or print clearly)

First Name _____ Last Name _____
Institution _____
Address _____
City _____ State _____ Zip _____ Country _____
Daytime Phone (_____) _____ Fax (_____) _____ E-mail Address _____

☐ Check here if you have special needs due to a disability; AAAS will contact you.

SCI2

2. Demographic Information

A. What is your PRIMARY discipline? (check only one):

- | | | |
|--------------------------------------------|--------------------------------------|-----------------------------------------------------|
| <input type="checkbox"/> Life Sciences | <input type="checkbox"/> Engineering | <input type="checkbox"/> Mathematics |
| <input type="checkbox"/> Chemistry | <input type="checkbox"/> Medical | <input type="checkbox"/> Physics/Astronomy |
| <input type="checkbox"/> Earth Sciences | <input type="checkbox"/> Statistics | <input type="checkbox"/> Social/Behavioral Sciences |
| <input type="checkbox"/> Computer Sciences | <input type="checkbox"/> Other _____ | |

B. In which sector do you work? (check only one):

- | | |
|--------------------------------------------------|----------------------------------------------|
| <input type="checkbox"/> Industry/Business | <input type="checkbox"/> Industry Consulting |
| <input type="checkbox"/> University/College | <input type="checkbox"/> Health Care |
| <input type="checkbox"/> Government | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Non-Profit Organization | |

C. Are you involved in purchasing decisions at work? ☐ Yes ☐ No

3. On-site Registration Fees (Please check only one)

A. Passport: Unlimited access to all symposia, seminars, Science Innovation, career workshops, and exhibition.

	AAAS Member ¹	Non-Member
Regular	<input type="checkbox"/> \$205 \$270	<input type="checkbox"/> \$380 \$325
Student ¹	<input type="checkbox"/> \$145	<input type="checkbox"/> \$170
Postdoc ¹	<input type="checkbox"/> \$230	<input type="checkbox"/> \$265
K–12 Teacher ¹	<input type="checkbox"/> \$230	<input type="checkbox"/> \$265
Retired ¹	<input type="checkbox"/> \$230	<input type="checkbox"/> \$265

Please indicate any seminar(s) you plan to attend:

- ☐ Genome Seminar ☐ Forum for School Science

B. General Meeting: Access to all symposia, career workshops and exhibition. (Does not include seminars or Science Innovation.)

Regular	<input type="checkbox"/> \$280 \$225	<input type="checkbox"/> \$340 \$285
Student ¹	<input type="checkbox"/> \$ 50	<input type="checkbox"/> \$ 70
Postdoc ¹	<input type="checkbox"/> \$165	<input type="checkbox"/> \$205
K–12 Teacher ¹	<input type="checkbox"/> \$165	<input type="checkbox"/> \$205
Retired ¹	<input type="checkbox"/> \$165	<input type="checkbox"/> \$205

C. Seminar Only: Access to the specified seminar, plus career workshops and exhibition.

Genome Seminar	<input type="checkbox"/> \$180	<input type="checkbox"/> \$240
Forum for School Science	<input type="checkbox"/> \$180	<input type="checkbox"/> \$240

D. One Day Only: Unlimited access for one day only.

(Note: Mon/Tue counts as one day.)		
All Registrants	<input type="checkbox"/> \$140	<input type="checkbox"/> \$190
Please specify day:		
<input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun <input type="checkbox"/> Mon/Tue		

E. Career Development Program Only:

Access to career workshops and exhibition.		
All Registrants	<input type="checkbox"/> \$10	<input type="checkbox"/> \$25

F. Exhibition Only:

All Registrants	<input type="checkbox"/> \$0	<input type="checkbox"/> \$25
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4. Member/Special Rate Verification ¹

To qualify for AAAS Member rate, indicate: AAAS Member Number (8-digits on your membership card or *Science* label) _____

To qualify for student rate, indicate: Expected year of graduation _____
Institution _____

To qualify for postdoc or K–12 teacher rate, indicate:
Institution _____

Chair or Principal's name _____

To qualify for retired rate, indicate: Retirement Year _____ Birth year _____

5. AAAS Membership Dues (Optional)

If you are not a AAAS member, you can join now by checking the appropriate box below and take advantage of the discounted member registration fees. You will also get a year's subscription (51 issues) to the journal *Science* at the 1998 rate.

Category	USA	Canada	International
Regular	<input type="checkbox"/> \$108	<input type="checkbox"/> \$174.41	<input type="checkbox"/> \$198
Student	<input type="checkbox"/> \$ 60	<input type="checkbox"/> \$123.05	<input type="checkbox"/> \$150
Postdoc	<input type="checkbox"/> \$ 85	<input type="checkbox"/> \$149.80	<input type="checkbox"/> \$175
K–12 Teacher	<input type="checkbox"/> \$ 85	<input type="checkbox"/> \$149.80	<input type="checkbox"/> \$175
Retired	<input type="checkbox"/> \$ 70	<input type="checkbox"/> \$133.75	<input type="checkbox"/> \$160

6. Payment Total

Please add the amounts from the box(es) you checked in sections 3 and 5 and write in the total amount due below:

TOTAL AMOUNT \$ _____ + \$ _____ = _____

☐ Check Enclosed^{3,4} ☐ Original Purchase Order Enclosed

Credit Card: ☐ VISA ☐ MasterCard ☐ American Express (No other cards accepted)

Credit Card Number _____

Expiration Date _____ Signature _____

7. How to Register

Bring this form with you to the registration desk on the 2nd floor of the Anaheim Hilton and Towers and SAVE \$25 OFF the On-site Regular Passport or General Meeting Registration. Discount not applicable on Seminar, One day, Career Development, or Exhibition admission.

DO NOT MAIL

FOR MEETING INFORMATION

www.aaas.org/meetings/scope, Phone: (202)326-6450,

Fax: (202)289-4021, E-mail: confinfo@aaas.org

Important Notes:

- (1) Members, students, postdocs, K–12 teachers, and retirees must complete the verification information in section 4 to qualify for the special registration rates.
- (2) Membership dues indicated herein are the 1998 rates, which are guaranteed through January 26, 1999 for those registering for the annual meeting. \$60 of dues plus international postage are allocated to *Science*. Please allow up to four weeks for receipt of your first issue. Canadian rates include GST #125488122.
- (3) Checks must be in United States currency and be payable on a United States bank.
- (4) Make checks payable to "AAAS."



AMERICAN ASSOCIATION FOR THE
ADVANCEMENT OF SCIENCE

Special Events

...just a sampling of the many special events planned for the meeting. Watch our web site for more details...

Public Science Day (by invitation) Funded by Unisys
San Andreas Fault Field Trip
Student Science Displays featuring local school science projects and posters by high school students representing the American Junior Academy of Science (AJAS)

NPR's *Talk of the Nation—Science Friday* broadcast
AJAS oral presentations
Exhibit Hall Grand Opening Reception
Annals of Improbable Research presentation

AAAS Fellows Forum
AAAS Awards Ceremony
1999 General Poster Sessions
1999 Student Poster Award Competition
AAAS President's Reception

Evening Concert: *Presenting New Musical Instruments*

Forum for School Science
Poster Session and Reception

Science Career Fair

Visit Disneyland while at the meeting!

Discounted full-day, and after 4:00 pm passes will be available for purchase at the meeting.

Full day passes are valid all days of the meeting. After 4pm passes are not valid Saturday, January 23 and Sunday, January 24.

Science Career Fair

Tuesday, January 26 • 11:00am–4:00pm
Anaheim Marriott Hotel

The AAAS Science Career Fair is FREE to all candidates!

Plan to be there!

Employers will be on-site in Anaheim to talk with you about job opportunities in the biotechnology and pharmaceutical industries

Bring multiple copies of your resume and visit as many employers as you wish

On-site Career Development Workshops conducted by top science career development professionals (workshops are \$10 AAAS Member /\$25 Non-Member)

Employers: For information about recruiting at the AAAS Science Career Fair call 202-326-6534.

Sponsored by AAAS and *Science* Magazine

CAREER DEVELOPMENT WORKSHOPS

Alternative Career Paths: AAAS Fellowship Programs in Science Policy and the Mass Media

Sunday, January 24
9:00am-12:00noon

Organized by Claudia J. Sturges and Amie E. King, AAAS

Awakenings: The REAL Science Job Market

Sunday, January 24
2:00pm-3:30pm

Monday, January 25
2:00pm-3:30pm

Organized by Dave Jensen, Search Masters International, Inc.

Managing an Effective Job Search

Tuesday, January 26
9:00am-12:00noon

Organized by Frank Walworth, American Chemical Society

Resume Writing and Interview Skills

Saturday, January 23
1:30pm-3:30pm

Sunday, January 24
9:00am-11:00am

Monday, January 25
2:00pm-4:00pm

Tuesday, January 26
10:00am-12:00noon

Organized by Ed Bocko, Pfizer

Science Careers—Diversity and Choice

Sunday, January 24
1:00pm-2:30pm

Monday, January 25
9:30am-11:00am

Organized by Chandra B. Louise, Peer Productions

Transitions to New Directions in Scientific Careers

Saturday, January 23
9:00am-12:00noon

Monday, January 25
9:30am-12:30pm

Organized by Sharon L. Hays, Office of Representative Vernon J. Ehlers

Your Successful Job Search

Sunday, January 24
3:00pm-4:30pm

Monday, January 25
11:30am-1:00pm

Organized by Chandra B. Louise, Peer Productions

Register for all Career Workshops: \$10, AAAS Member; \$25, Non-Member

Science Career Fair
Tuesday, January 26
11:00am-4:00pm

Circle No. 25 on Readers' Service Card

More program details on the web

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www.aaas.org/meetings/scope