

1989 AAAS Annual Meeting

San Francisco Hilton, 14–19 January

AAAS • Science in San Francisco • '89



Preliminary Program, Part 2

Here is Part 2 of our San Francisco extravaganza: **Life Sciences & Technology**. (Be sure to see Part 1, **Physical Sciences & Technology**, in the 9 September issue of *Science* and Part 3, **Social Sciences, Science Education, and Science Policy**, in the forthcoming 30 September issue.)

Life Sciences & Technology features two seminars and numerous symposia. The seminar on **protein folding** includes sessions on theoretical models, early folding intermediates, folding of TIM barrels, mutational analysis of folding, synthetic peptides and proteins, and *in vivo* folding, processing, and secretion of proteins. The seminar on **plant molecular biology and biotechnology** includes sessions on regulation of gene expression in crop systems, crop protection, crop improvement, and technology for plant transformation. Seminars run concurrently, and each lasts 3 full days. Last year's life science seminars were extremely popular, and only those who had registered in advance of the

meeting could be admitted. Space is limited again this year, and you are advised to register well before the 16 December deadline to assure yourself a seat at either of these sessions.

The full symposium program in **Life Sciences & Technology** features multisession, in-depth treatments of such important topics as **receptors, developmental biology and gene expression, retroviruses, AIDS, the human genome project**, and many aspects of **ecology** (including the impacts of drought); there is an extensive set of sessions on **agriculture** as well.

Physical Sciences & Technology, which was described in the 9 September issue, features a six-part treatment of **chaos**; an in-depth treatment of **neural networks** and of **spatial statistics**; and an extensive survey of **physics** (jointly arranged with the American Physical Society and the American Association of Physics Teachers) that includes synchrotron radiation, the scanning tunneling electron micro-

(continued on page 1685)

Here's what you'll find:

☐ **Over 250 sessions:** Choose from a full schedule of symposia, seminars, technical sessions, and workshops covering the **Life Sciences & Technology** (listed on the following pages), **Physical Sciences & Technology** (9 September issue of *Science*), and **Social Sciences, Science Education, and Science Policy** (30 September issue of *Science*).

☐ **Major plenary lectures:** Hear 15 world-renowned scientists speaking on a wide range of topics (this page).

☐ **Exhibition:** Learn about new products and services in exhibits by 100 publishers, software manufacturers, information services, and scientific societies.

☐ **Poster sessions:** Exchange ideas with interested colleagues in a full series of poster sessions on topics relating to any of the seminars, symposia, technical sessions, and workshops. To participate, see the general "Call for Contributed Papers" in the 9 September issue or the "Call for Seminar Papers" in this issue on page 1686.

☐ **Science Film Festival:** See some 50 science films for students and professionals.

☐ **Two meetings for the price of one:** As a AAAS Annual Meeting registrant, you will also have full access to all sessions of the concurrent Joint Winter Meeting of the American Association of Physics Teachers (AAPT) and the American Physical Society (APS).

☐ **Free employment exchange:** Put your professional qualifications directly in the hands of the employers who will be coming to this Annual Meeting. For details of the services offered, see the Annual Meeting brochure that will be mailed to all members with the 7 October issue of *Science*.

☐ **Discounts on travel:** United Airlines and Delta Air Lines offer special discount fares to San Francisco for travel during 10–26 January 1989. See details on page 1685.

☐ **Savings on advance registration:** The advance registration deadline is 16 December. To obtain the discounted advance registration rate and the low hotel convention rates, use the forms on page 1687.

Plenary Lectures

Saturday, 14 January, 8:30 pm: Keynote Address, DONALD KENNEDY (*Stanford Univ.*).

Sunday, 15 January, 1:00 pm: Carey Lecture, "Cheer Up, Things Could Be Worse," WILLIAM T. GOLDEN (AAAS Treasurer). **1:00 pm:** "Protein Folding," FREDERIC M. RICHARDS (*Yale*). **8:30 pm:** "The Search for Eve," ALLAN C. WILSON (*UC-Berkeley*).

Monday, 16 January, 1:00 pm: Waterman Lecture, PETER SCHULTZ (*UC-Berkeley*). **1:00 pm:** "Plant Molecular Biology and Biotechnology," SPEAKER TO BE ANNOUNCED. **8:30 pm:** "Resource Allocations for Science," FRANK PRESS (*National Academy of Sciences*).

Tuesday, 17 January, 1:00 pm: Sarton Lecture, "The Politics of the Meter Stick," JOHN L. HEILBRON (*UC-Berkeley*). **1:00 pm:** "Opportunities for Synchrotron Radiation Research," ARTHUR BIENENSTOCK (*Stanford Synchrotron Radiation Laboratory*). **8:30 pm:** AAAS President's Lecture, "From the President of AAAS to the President of the United States," WALTER E. MASSEY (*Univ. of Chicago*).

Wednesday, 18 January, 1:00 pm: "Optical Astronomy in California," ROBERT P. KRAFT (*Lick Observatory, UC-Santa Cruz*). **1:00 pm:** "Molecular Genetics of Cancer," J. MICHAEL BISHOP (*UC-San Francisco*). **8:30 pm:** "Genetics and the Disappeared: Search for Two Generations," MARY-CLAIRE KING (*UC-Berkeley*).

Thursday, 19 January, 1:00 pm: "Superconductivity," SHOJI TANAKA (*Univ. of Tokyo*). **1:00 pm:** "Earthquake Prediction," ALLAN G. LINDH (*US Geological Survey, Menlo Park, CA*).

Life Sciences & Technology*

General Life Science

Frontiers of the Life Sciences (2 sessions, 1/18). Cancer etiology; protein engineering and oral therapies; blood-brain barrier and drug delivery; agricultural biotechnology; neurobiology; cognitive neuroscience; spiders as models; DNA and phylogeny.

Salt and Life (1/19). Osmoregulation; marine salinity; salt deposits.

Opportunities in the Biological Sciences (1/19). NRC survey; research opportunities.

Seminar: Plant Molecular Biology & Genetic Engineering

Plant Molecular Biology and Genetic Engineering (6 sessions, 1/15–1/17). (For a full description of this special-registration seminar, see page 1686.)

Seminar: The Process of Protein Folding

The Process of Protein Folding (6 sessions, 1/15–1/17). (For a full description of this special-registration seminar, see page 1686.)

Receptors; Developmental Biology

Receptor Symposium (3 sessions, 1/15–1/16). Receptors: steroid, adrenergic, PDGF, NMDA, nicotinic acetylcholine, peptide hormone, insulin hormone, protein kinase C, aspartate.

Developmental Biology and Gene Expression (4 sessions, 1/16–1/18). Cross-phyla comparisons; protein conservation for regulatory purposes.

Retroviruses; AIDS

Retroviral Infection of Animals as Models for Human Disease (2 sessions, 1/16). Retroviruses; viral gene expression; oncogenes.

Retroviruses and Oncogenes (4 sessions, 1/17–1/18). Envelope proteins; retroviral replication; regulation of HIV gene expression; pathogenesis; growth factors; recessive oncogenes.

Psychoimmunological Factors in Progression of HIV Infection (1/15). Conditioned immune response; behavioral oncology; stress and immune system response.

Modelling the AIDS Epidemic (1/15). Assessing intervention strategies and sexual behavior.

Chemotherapy of AIDS (1/19). Nucleotides; molecular targeting; computer graphics; animal retroviruses.

Clinical Trials of AIDS Drugs and Vaccines: Issues of Science, Ethics, and Confidentiality (1/19). Maintaining patient confidentiality; legal and ethical problems; NIH role.

Molecular & Cellular Biology

Mathematics and Molecular Biology (1/15). DNA sequencing; protein structure.

The Human Genome Project: Progress and Prospects (3 sessions, 1/17–1/18). Status of human gene and linkage maps; ordering strategies; automation and DNA sequencing technology.

New Visions of Proteins: NMR and Computer Graphics (2 sessions, 1/18). Modelling peptide and protein structures; distance geometry; two-dimensional spectroscopy.

The Emerging Science of Recombinant Protein Toxicology (1/19). Animal vs. human safety evaluation.

Angiotensin and Atrial Natriuretic Peptide in Tissues: Genetic Regulation and Function (1/15). Renin secretion and regulation; anterior pituitary secretion.

IgG4: A Unique Subclass of Antibodies (1/15). Developing assays; immunity; autoimmunity.

Medicine & Health

Designer Drugs (2 sessions, 1/15). Medical chemistry, legal status, MPTP; MDMA; PCP; public health perspective.

Factors That Control Nerve Regeneration (1/16). Growth cones; extracellular matrix components; growth inhibition.

Health Implications of Smokeless Tobacco (1/16). Epidemiology; histopathology; physiological and pharmacological effects.

The Evolving National Program for the Assessment of the Quality of Medical Care (1/18). Theoretical framework; measurement and applications; consumer information.

Advances in Medical Imaging Methods (1/19). PET; MRI; magnetoencephalography.

High Tech Imaging Developments Applied to Medicine (1/16). Fiber optics; high-resolution, color, and 3-D imaging; archiving and laser disks; digital array handling.

Zinc in Health and Disease (1/16). Zinc metabolism; zinc deficiencies in gestation, alcoholism, and malnutrition.

Mechanisms of Renal Calcium Handling: Implications for Health and Disease (1/18). Kinetic analysis; binding protein; extrusion; channels.

*The AAAS Annual Meeting Preliminary Program is being presented in three separate issues of *Science*:

1—**Physical Sciences & Technology** (9 September)

2—**Life Sciences & Technology** (this issue)

3—**Social Sciences, Science Education, and Science Policy** (30 September)

Ecology & Ecosystems

Ecological Succession Theory Applied to Conservation and Land Use Management (1/17). Ecosystem recovery; mechanisms of succession; range and forest management.

Resilience of Arid Lands to Natural and Man-Caused Perturbations (2 sessions, 1/18). Hydrology: groundwater circulation and lake eutrophication; bighorn extinction.

Oil Exploration on the Continental Shelf: Impacts on Fisheries, Policy, and the Mediation Process (1/19). Seismic exploration and the northern anchovy; industrial and fisheries views.

The Drought of 1988 and Implications for the Future (1/19).

Agroforestry: A Global Perspective on Potentials and Constraints (1/15). Biological and social perspectives; expansion in the United States and the developing world.

Agricultural Impacts on Groundwater (1/17). Groundwater contaminants; pesticide and herbicide chemistry.

Agriculture and Groundwater Quality (1/17). Pesticides; conservation tillage; nitrogen management.

Advances in Forest Science (1/19). Semiochemicals; atmospheric pollutants; symbiotic fungi; biotechnological advances.

Agriculture

Prospects for Improving Biological Nitrogen Fixation (1/15). Plant-microbe interaction; hydrogenase; site-

directed mutagenesis; nitrogen-fixing genes.

Genetic Resources at Risk: Scientific Issues, Technologies, and Funding Policies (1/16). Valuation criteria; plants; *Drosophila*; endangered species.

Crop Breeding Criteria and Agricultural Development (1/16). Third World; sociocultural criteria; biotechnology; germ plasm conservation; pest/pathogen evolution.

Ecology and Management of Grazing Systems (1/17). Plant-animal interface; range and soil science; humid and arid regions.

Opportunities for Improved Crop Productivity Under Drought Conditions (1/18). Plant physiology; germ plasm; irrigation technology; weather forecasting.

Biotechnology on the Farm: Developments and Impacts in Production Agriculture (1/19). Strategies of product development and distribution; biotechnology in plant, animal, and microbial sciences.

Impact of Foreign Aid on U.S. Agriculture (1/15). Effectiveness; Third World economic development and import markets; U.S. agricultural competitiveness.

Treatment of Food by Ionizing Radiation (1/19). Policy issues; economics; safety.

The Pyrethroid Insecticides: A Scientific Advance for Human Welfare? (1/19). Pest control; chemistry; economics; public health; environmental concerns.

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scope, and highlights high-energy physics, precision measurements, and other topics. The frontiers of **chemistry** (including dynamics, catalysis, inorganic, and bioorganic chemistry); in-depth treatments of **ocean processes** and of **climate changes**, impact and processes; **astronomy and space science**; and much more will be presented.

Next week, we will present the final component of the 1989 Annual Meeting program. **Social Sciences, Science Education, and Science Policy** will appear in the 30 September issue and will feature an in-depth treatment of **risk**, of issues in **arms control**, and of **neurobehavior**, along with symposia in the fields of **psychology**, **anthropology**, **sociology**, **economics**, and **history and philosophy of science**. Among other highlighted issues are **ethics and values in science**, **outreach to women and minorities**, and the many facets of problems in **science and technology education**.

This is a blockbuster of a program with over 250 sessions, featuring the cutting edge of science in all of its aspects. Register now and save at the low pre-meeting rate, and while you're at it, take advantage of this opportunity to contribute a poster-session paper of your own on one of these many topics. (For instructions on poster papers, see the 9 September issue of *Science* and page 1686 in this issue.)

Come to San Francisco, home of the cable car and the Golden Gate Bridge, and of Fisherman's Wharf and the Cannery; a marvelous city for walking about and just looking, for sampling a host of different cuisines and fine wines, and for enjoying the mild California climate in mid-January. Come to San Francisco and bask in its marvelous ambience while you enjoy and participate in the intellectual ferment that is the AAAS Annual Meeting.

—ARTHUR HERSCHMAN

Discount Air Fares to San Francisco

AAAS Annual Meeting ♦ 14–19 January 1989

Fly UNITED AIRLINES or DELTA AIR LINES to the AAAS Annual Meeting in San Francisco and on to Honolulu (optional) and save when you travel from 10 January through 26 January 1989.

These special discounts are available only through the airlines' convention reservation desks. Call one of the toll-free numbers listed here and give the appropriate convention code to obtain the greatest available discount for your itinerary.

Call today; seats may be limited. Tickets can be mailed to you or picked up at your travel agent or airline office.

UNITED AIRLINES

AAAS Convention Code: 9017D
Call toll-free 7 days a week,
8:00am – 11:00pm Eastern time
Mainland U.S. and Canada: 1-800-521-4041
Hawaii and Alaska: 1-800-722-5243

DELTA AIR LINES

AAAS Convention Code: R0030
Call toll-free 7 days a week,
8:00am – 8:00pm Eastern time
USA (incl. HI, AK, PR): 1-800-241-6760
Canada: Call DELTA locally

Life Science Seminars

The following 3-day seminars will feature in-depth presentations by leading researchers at the cutting edge of their respective fields. **Note:** Space is limited, and special registration is required. See the registration form on page 1687.

The Process of Protein Folding

Sunday/15 Jan. through Tuesday/17 Jan.

Organized by JANE RICHARDSON (*Duke*) and IRWIN KUNTZ (*UC-San Francisco*).

Protein folding, the self-directed transition of a disorganized chain to a highly ordered and functional biological structure, is of increasing practical concern for the biotechnology industry and for interpreting the growing database of DNA sequences. The emphasis in this seminar will be on the new interactions between theory and experiment, the characterization of early folding intermediates, and the power to tailor the proteins and their fragments to test folding hypotheses. Sessions will cover the following topics:

Theoretical Models. HAROLD SCHERAGA (*Cornell*), JEFFREY SKOLNICK (*Washington Univ., St. Louis*), KEN DILL (*UC-San Francisco*), STUART KAUFFMAN (*Univ. of Pennsylvania*), DONALD BASHFORD (*Harvard*).

Early Folding Intermediates. CHRISTIAN ANFINSEN (*Johns Hopkins*), HEINRICH RÖDER (*Univ. of Pennsylvania*), ROBERT BALDWIN (*Stanford*), PETER KIM (*Whitehead Inst., MIT*).

The Folding of TIM Barrels. JANE RICHARDSON (*Duke*), KASPER KIRSHNER (*Biozentrum, Univ. of Basel, Switzerland*), ROBERT MATHEWS (*Pennsylvania State*), SHOSHANA WODAK (*Free Univ. of Brussels, Belgium*).

Mutational Analysis of Folding. IRWIN KUNTZ (*UC-San Francisco*), JONATHAN KING (*MIT*), RONALD WETZEL (*Genentech Corp.*), DAVID SHORTLE (*Johns Hopkins*), DAVID GOLDENBERG (*Univ. of Utah*).

Synthetic Peptides and Proteins. JANET THORNTON (*Univ. of London, UK*), KENNETH KOPPLE (*SmithKline & French*), DANIEL URRY (*Univ. of Alabama*), DAVID RICHARDSON (*Duke*).

In vivo Folding, Processing, and Secretion of Proteins. LILA GIERASCH (*Univ. of Texas, Dallas*), LINDA RANDALL (*Washington State, Pullman*), JOHN SMITH (*Harvard Medical School*), STEVE ANDERSON (*Rutgers*), PHILIP BASSFORD (*Univ. of North Carolina, Chapel Hill*).

Plant Molecular Biology & Genetic Engineering

Sunday/15 Jan. through Tuesday/17 Jan.

Organized by LAWRENCE BOGORAD (*Harvard*) and ABRAHAM EPSTEIN (*Iowa State*).

Frontline research and advances in biotechnology methods will be juxtaposed with their commercial applications for genetically engineering plants and crops systems. Sessions will cover the following topics:

Regulation of Gene Expression in Crop Systems.

PETER ALBERSHEIM (*Univ. of Georgia*), ROBERT B. GOLDBERG (*UCLA*), SHARON R. LONG (*Stanford*), PETER H. QUAIL (*Plant Gene Expression Center, Albany, NY*), DESH PAL S. VERMA (*Ohio State, Columbus*), J. SCHELL (*Max Planck Inst., Cologne, FRG*), and additional speakers.

Molecular Biology of Crop Protection.

CHARLES J. ARNTZEN (*Texas A&M*), PAPPACHAN E. KOLATTUKUDY (*Ohio State, Columbus*), BRIAN STASKAWICZ (*UC-Berkeley*), MARC VAN MONTAGU (*Labo Voor Genetika, Gent, Belgium*), STEVEN H. HOWELL (*Boyce Thompson Inst., Ithaca, NY*), C.J. LAMB (*Salk Inst., San Diego*), and additional speakers.

Crop Improvement. RICHARD FLAVELL (*John Innes Inst., Norwich, UK*), C.S. LEAVINGS III (*North Carolina State, Raleigh*), and additional speakers.

Technology for Plant Transformation. WINSTON J. BRILL (*Agracetus, Middleton, WI*), I. POTRYKUS (*Inst. für Pflanzenwissenschaften, Zurich, Switzerland*), and additional speakers.

Biotechnology Showcase. Presentations by plant biotechnology companies using the tools of molecular biology for genetic engineering.

Call for Seminar Papers

Deadline for Abstracts: 1 December 1988

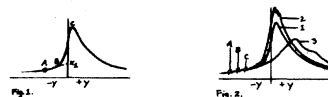
Presenting a contributed paper at a seminar poster session is **open only to registrants of that seminar**. (For call for papers for all Meeting registrants, see 9 September *Science*.) For each accepted paper, a 4' × 6' bulletin board will be provided for display of text and graphics. Abstracts of papers, if prepared in the format described below, will be copied and distributed to all seminar registrants.

Preparation of abstracts: ■ Copy must be typed on white paper to fit within a 5" square. Use typewriter or letter-quality printer. ■ Indent, space, underline, and capitalize as in the example; do not double-space text. ■ Use reproducible black ink for all hand-lettering. ■ Do not box abstract or cut and paste it onto another piece of paper. **Transmittal:** ■ Outside the 5" square, type the title of the seminar and your complete name, mailing address, and phone number. ■ Send original plus 2 copies **with your advance registration form** to: Seminars, AAAS Meetings Office, 1333 H Street, NW, Washington, DC 20005.

5 inches (12.7 cm)

Indent Five Spaces and Type Title in Upper and Lower Case Letters and Underline. AUTHOR'S NAME IN UPPER CASE (Institution Name in Upper and Lower Case, SECOND, AUTHOR (Institution).)*

Skip one line and type abstract. The full width of the column of typed material should be 5 inches (12.7 cm) and must not extend beyond that. The total length of the material, from top of title to bottom of footnotes, must not exceed 5 inches (12.7 cm). Abstracts that exceed these parameters will be returned. All special symbols and signs that must be hand lettered (e.g., μ) should be rendered in reproducible black ink as clearly and carefully as possible. The entire submission should be of camera-ready quality so that it can be photocopied, turned into a plate, and printed. The printed abstract will be about 2/3 the size of the typed version. Avoid paragraphing as this wastes space. However, you may use your allotted space to neatly letter equations and diagrams as you deem necessary.



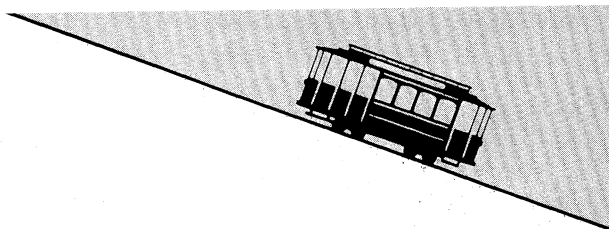
as indicated in this example.

*Skip one line and type footnotes, if any.

Advance Registration Form

AAAS Annual Meeting ♦ San Francisco

14-19 January 1989



SM1

Name of registrant _____
(Please print or type) (Last) (First & initial)

Name of spouse registrant _____
(Last) (First & initial)

Institution/Company _____
(To be printed on badge) (Registrant)

(Spouse registrant)

Mailing address _____
(Street)

(City/State) (Zip code) (Telephone number)

Convention address _____
(Where you can be reached) (Hotel and/or telephone number)

Check days on which you will attend the Meeting: Sat Sun Mon Tue Wed Thu
☐ ☐ ☐ ☐ ☐ ☐

☐ Check here if you need special services due to a handicap. We will contact you before the Meeting.

■ **16 December deadline:** For registrations received by this date, we will mail registration badge, receipt, preliminary program, and voucher for the full program and abstracts. For registrations received after this date, we will hold all materials at the Advance Registrants' Desk at the San Francisco Hilton. Registrations postmarked after 16 December will be charged at the onsite rate. ■ Refund requests must be made by letter or telegram to the address below by 5 January and will be honored after the Meeting. **No refunds will be made for cancellations received after 5 January.** **Fees:** ① Nonmember fee includes introductory 6-month membership with 25 issues of *Science*. ② Student rates apply to full-time undergraduate and graduate students and retirees. ③ Seminar space is limited; late registrations cannot be guaranteed.

Mail to: AAAS, Annual Meeting Registration, Room 830
 1333 H Street, NW, Washington, DC 20005

Registration Fees

Meeting Only	Before 16 Dec	After 16 Dec
Regular member	<input type="checkbox"/> \$ 75	\$100
Regular nonmember ¹	<input type="checkbox"/> \$110	\$135
Student ² member	<input type="checkbox"/> \$ 35	\$ 50
Student nonmember	<input type="checkbox"/> \$ 55	\$ 70
Spouse of registrant	<input type="checkbox"/> \$ 55	\$ 55

Meeting and One Seminar³

Regular member	<input type="checkbox"/> \$160	\$185
Regular nonmember	<input type="checkbox"/> \$195	\$220
Student member	<input type="checkbox"/> \$ 75	\$ 90
Student nonmember	<input type="checkbox"/> \$ 95	\$110

Check ☐ Protein Folding
☐ Plant Molecular Biology

Your registration fee \$ _____
 Spouse registration fee \$ _____
TOTAL AMOUNT \$ _____

☐ Check ☐ VISA ☐ MasterCard
(No other cards accepted)

Card number _____ Expires _____

Signature _____

AAAS Hotel Reservation Form

AAAS Annual Meeting ♦ San Francisco

14-19 January 1989

Send confirmation to:

Name _____
(Last) (First & initial)

Mailing address _____
(Street)

(City/State) (Zip code) (Telephone number)

Other occupant(s) of room: _____
(Name) (Name)

Indicate special housing needs due to a handicap: ☐ Wheelchair-accessible room

☐ Other _____

Charge my major credit card (card type): _____

Card no. _____ Expires _____

Signature _____

- Reservations must be sent to the San Francisco Hilton Hotel on this official form by **16 December 1988**. Reservations received after this cut-off date are conditional on space availability.
- If the room rate requested is no longer available, the next available higher rate will be confirmed.
- Reservation changes and cancellations must be sent directly to the hotel.
- Rollaway beds or additional adult in room, \$20.
- Children stay free of charge in same room with parents if no extra bed is required.

San Francisco Hilton Hotel Rates

Check appropriate box for type of room desired. Add 11% tax to rates shown.

Choice	Single	Double
Standard	<input type="checkbox"/> \$ 89	<input type="checkbox"/> \$105
Superior	<input type="checkbox"/> \$ 99	<input type="checkbox"/> \$115
Deluxe	<input type="checkbox"/> \$109	<input type="checkbox"/> \$125
Suites	<input type="checkbox"/> \$200 & up	

Arrival date _____ Time _____

Departure date _____ Time _____

Please list definite arrival and departure dates and times. If you will arrive after 6:00 pm, this reservation must be accompanied by a deposit (room rate for one night plus tax); check or major credit card accepted.

Mail to: AAAS Reservations
 San Francisco Hilton
 1 Hilton Square
 San Francisco, CA 94102-2189