

**Preconvention Program**

# 1990 AAAS Annual Meeting

*New Orleans, 15 – 20 February*

**Satisfy all of your senses** with a feast of ideas and Cajun tradition at the 1990 AAAS Annual Meeting in New Orleans.

Come savor the tastes and smells of crawfish, gumbo, and jambalaya; listen to the sounds of jazz and Dixieland; feel the mildness of the southern climate; and treat the most important sensory organ of all — your mind!

Come to the AAAS Annual Meeting, not only to learn about the latest developments in your own field, but also to hear about recent advances across all disciplinary boundaries. You'll gain new perspectives on the interrelations between various fields, and discover how these relationships can affect your own work.

Take your pick from more than 200 **symposia, technical sessions, and workshops**, covering the entire spectrum of the physical, life, and social sciences and technology, including a

major concentration in the biological and medical sciences, extensive treatment of global change, and an in-depth examination of the challenges in science education and human resources. Listen to major **plenary lectures** by 15 eminent scholars. Hear from leading researchers in **seminars** on protein folding or on the biology of parasitism. Acquire new skills in a **short course** on chaos applications or on computer simulation. Discover new products and services at the **exhibition**, and talk one on one with researchers at a series of **poster sessions**.

Don't wait until February to get started — use the AAAS Annual Meeting Planner in the middle of this section *right now* to begin mapping out a meeting experience appropriate for your specific needs and interests. Then fill out the registration forms, and prepare to join us in New Orleans.

— Arthur Herschman

## Plenary Lectures

### Thursday, 15 February

**8:30 pm, Keynote Address:** *(To be announced)*

### Friday, 16 February

**1:00 pm, Seminar Lecture:** "The Impact of Molecular Biology on Vaccine Development: The Malaria Case," **Victor Nussenzweig** (*New York Univ. Medical Center*).

**1:00 pm, Carey Lecture:** "Preventing Damage in Crucially Formative Periods of Human Development," **David A. Hamburg** (*President, Carnegie Corp. of New York*).

**8:30 pm:** "Science and Technology in the Bush Administration," **D. Allan Bromley** (*Director, Office of Science and Technology Policy*).

### Saturday, 17 February

**1:00 pm, Seminar Lecture:** "Mechanisms of Cooperativity and Allosteric Regulation in Proteins," **Max F. Perutz** (*Medical Research Council, Cambridge, England*).

**1:00 pm, Sarton Lecture:** "Officially Encouraged, Institutionally Discouraged: Women in Science, 1940–1968," **Margaret W. Rossiter** (*History and Philosophy of Science, Cornell*).

**8:30 pm:** "Immunopathogenic Mechanisms of Human Immunodeficiency Virus Infection," **Anthony S. Fauci** (*Director, National Inst. of Allergy and Infectious Diseases*).

### Sunday, 18 February

**1:00 pm:** "Quality Education for Minorities and the American Future," **Ray Marshall** (*LBJ School, Univ. of Texas - Austin*).

**1:00 pm, Waterman Lecture:** "Multiple Regulatory Mechanisms Govern Egg-Laying Behavior in the Marine Snail *Aplysia*," **Richard H. Scheller** (*Biological Sciences, Stanford Univ.*).

**8:30 pm, AAAS President's Lecture:** "The Human Resources Crisis in Science: Can It Be Averted? Can It Be Resolved?" **Richard C. Atkinson** (*Chancellor, UC-San Diego*).

### Monday, 19 February

**1:00 pm:** "Food Safety and Food Labeling: Top Priority at the FDA," **Frank E. Young** (*Commissioner, FDA*).

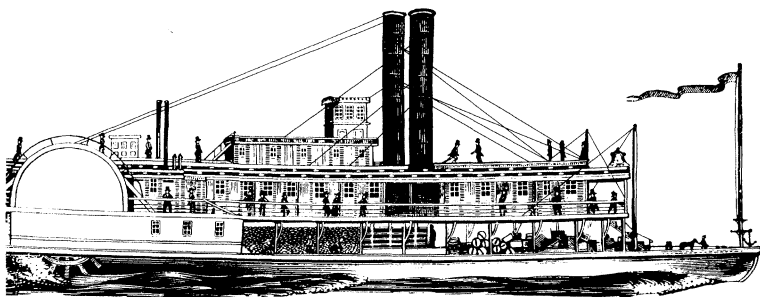
**1:00 pm:** "Global Warming and Recent Climate Change: Observations and Modeling," **Kevin E. Trenberth** (*National Center for Atmospheric Research*).

**8:30 pm:** "Monitoring Earth from Space," **Sally K. Ride** (*Director, California Space Institute, UC-San Diego*).

### Tuesday, 20 February

**1:00 pm:** "Turning Points: Preparing American Youth for the 21st Century," **David Hornbeck** (*Carnegie Council on Adolescent Development*).

**1:00 pm, McGovern Lecture:** "Brain Representations and the Construction of Reality," **Vernon B. Mountcastle** (*Johns Hopkins School of Medicine*).



# Seminars

**Three days: Friday-Sunday, 16-18 February**  
(Separate fee required; see registration form)

## Protein Folding

Organized by **Barry T. Nall** (Univ. of Texas Health Science Center - San Antonio) and **Ken A. Dill** (UC-San Francisco).

### Protein Stability (Fri/8:30 pm).

Presiding: **Anthony L. Fink** (UC-Santa Cruz).

Conformational stability of ribonuclease T1, **C. Nick Pace** (Texas A&M); Teaching proteins to fold, **Paul M. Horowitz** (Univ. of Texas Health Science Center - San Antonio); The folding and refolding of mutant T4 lysozyme at low temperatures, **John Schellman** (Univ. of Oregon); Using subunit interactions to probe the molecular logic of hemoglobin, **Gary Ackers** (Washington Univ. School of Medicine); On the origins of secondary structure in globular proteins, **Hue Sun Chan** (UC-San Francisco).

### Structural Methods (Fri/2:30 pm).

Presiding: **Thomas O. Baldwin** (Texas A&M).

Advances in tools for macromolecular crystallography: Synchrotrons, detectors, computers, and recombinant DNA, **Wayne A. Hendrickson** (Columbia Univ.); Structural characterization of natural and synthetic peptides by NMR, **David E. Wemmer** (UC-Berkeley); Solution structures of trypsin inhibitor mutants by NMR: Implications for protein folding, **Irwin D. Kuntz** (UC-San Francisco); Racemization and its effect on protein structure and functionality, **Jeffrey L. Bada** (Scripps Institution of Oceanography); Protein structure by 2D and 3D NMR, **Angela M. Gronenborn** (NIH).

### Electrostatics and Protein Structure and Folding (Sat/8:30 am). Presiding: Ken A. Dill.

Computer simulations of protein folding/unfolding, **Michael Levitt** (Stanford Univ. Medical School); Electrostatic effects in protein structure and function, **Barry Honig** (Columbia Univ.); Ionic charge effects on folded and unfolded proteins, **Dirk Stigter** (UC-San Francisco); Molecular dynamic effects on protein electrostatics, **James B. Matthews** (ICI Pharmaceuticals Group); Electrostatic effects and allosteric regulation in *E. coli* aspartate transcarbamylase, **Norma M. Allewell** (Wesleyan Univ.).

**Plenary Lecture (Sat/1:00 pm).** "The Impact of Molecular Biology on Vaccine Development: The Malaria Case," **Victor Nussenzweig** (New York Univ. Medical Center).

### Relation of Amino Acid Sequence to Structure and Folding (Sat/2:30 pm). Presiding: Jonathan King (MIT).

Searching for the folding information in protein sequences, **Robert T. Sauer** (MIT); Structural mutants which mimic oxidation state changes in cytochrome *c*, **Gary D. Brayer** (Univ. of British Columbia); Can molecular evolution provide clues to the

folding code? **Stephen C. Hardies** (Univ. of Texas Health Science Center - San Antonio); Relationships of sequence to function of yeast iso-1-cytochrome *c*, **Fred Sherman** (Univ. of Rochester School of Medicine and Dentistry); The tryptophan synthase  $\alpha_2\beta_2$  multienzyme complex: Relationship of the amino acid sequence and folding domains to the 3-dimensional structure, **Edith Wilson Miles** (NIH).

### Reception (Sat/6:00 pm).

### Folding Mechanisms (Sun/8:30 am).

Presiding: **C. Nick Pace** (Texas A&M).

Folding studies of *E. coli* dihydrofolate reductase, **Carl Frieden** (Washington Univ. School of Medicine); Denatured states of proteins, **Anthony L. Fink** (UC - Santa Cruz); Structure of early intermediates in ubiquitin folding, **Martha S. Briggs** (Georgia Inst. of Technology); Characterization of unfolded and partially folded states of proteins by NMR spectroscopy, **Christopher M. Dobson** (Oxford Univ., UK); Mechanism of protein folding, **O.B. Ptitsyn** (Inst. of Protein Research, Academy of Sciences, USSR).

### Auxiliary Factors in Folding (Sun/2:30 pm).

Presiding: **Mary-Jane Gething** (Univ. of Texas Southwestern Medical Center).

Protein disulfide-isomerase: A catalyst of the folding of disulfide-bonded proteins in the test tube and in the cell, **Robert B. Freedman** (Univ. of Kent, Canterbury, UK); Prolyl isomerase: Enzymatic catalysis of slow steps in protein folding, **Franz X. Schmid** (Universitat Bayreuth, W. Germany); Protein folding in the endoplasmic reticulum, **Mary-Jane Gething**; Alternate folding motifs for the gramicidin channel: Crystallographic analysis of polymorphism, **Bonnie Ann Wallace** (Rensselaer Polytechnic Inst.); Closing comments, **George D. Rose** (Penn State College of Medicine).

### Poster Session (Date and time to be announced).

Chairs: **Chirsty MacKinnan** (Univ. of Texas Health Science Center - San Antonio), and **Delphia Hamill** (Incarnate Word College).

## Call for Seminar Papers

Seminar registrants are invited to submit abstracts for the poster sessions that will be held at their respective seminars. **The deadline for seminar abstracts has been extended to 22 December.** For instructions, see the 1 September 1989 issue of *Science* magazine. (Note: The deadline extension applies only to seminar registrants submitting abstracts for one of the two seminar poster sessions.)

## The Biology of Parasitism

Organized by **C.C. Wang** (UC-San Francisco).

**Diagnosis of Chagas' Diseases and Leishmaniasis** (Fri/8:30 am). Presiding: **Dyann Wirth** (Harvard School of Public Health).

Molecular biology in diagnosis of Chagas' disease, **Wim Degraeve** (Fiocruz, Rio de Janeiro, Brazil); Molecular diagnosis of leishmaniasis, **Dyann Wirth**; Variations of surface antigens on *Trypanosoma cruzi* during development, **Jerry E. Manning** (UC-Irving); Gene expression in development of *Trypanosoma cruzi*, **Samuel Goldenberg** (Fiocruz, Rio de Janeiro, Brazil).

**Plenary Lecture** (Fri/1:00 pm). "Mechanisms of Cooperativity and Allosteric Regulation in Proteins," **Max F. Perutz** (Medical Research Council, Cambridge, England).

**Immune Mechanisms of Parasite Killing** (Fri/2:30 pm). Presiding: **Anthony Cerami** (Rockefeller Univ.).

Immunomodulation of leishmania infection, **Richard M. Locksley** (UC-San Francisco); The monokines, **Anthony Cerami**; T-cell regulation of schistosome immunity and pathology, **F. Alan Sher** (NIH); Immunity to filariasis, **Thomas R. Klei** (Louisiana State Univ.).

**Cellular Immunity in Parasite Infections** (Sat/8:30 am). Presiding: **Carole A. Long** (Hahnemann Univ.).

Immunoregulation by helper T-cell subsets in parasite infections, **Robert L. Coffman** (DNAX Research Inst. of Molecular and Cellular Biology); T-cell functions and autoimmunity in Chagas' diseases, **Ricardo Ribeiro-dos-Santos** (Fiocruz, Rio de Janeiro, Brazil); Cellular immunity to malaria, **Carole A. Long**; Regulation of lymphokine productions in experimental and human Chagas' disease, **Rick L. Tarleton** (Univ. of Georgia); Cellular immunity to schistosomiasis, **Barbara L. Doughty** (Texas A&M).

**Chemotherapy of Parasite Infections** (Sat/2:30 pm).

Presiding: **C.C. Wang**.

Trypanothione metabolism in the chemotherapy of trypanosomiasis and leishmaniasis, **Alan Fairlamb** (London School of Tropical Medicine and Hygiene, UK); Metabolism and mode of anti-*T. cruzi* action of gentian violet, **Roberto Docampo** (Rockefeller Univ.); The glycosomes of *Trypanosoma* and *Leishmania*, **Fred R. Opperdoes** (Internat. Inst. of Cellular and Molecular Pathology, Brussels, Belgium); Ornithine decarboxylase in trypanosomes, **C.C. Wang**; Drug resistance in malarial parasites, **Wilbur K. Milhous** (Walter Reed).

**Reception** (Sat/6:00 pm).

**Surface Antigens of Parasites** (Sun/8:30 am). Presiding: **Paul T. Englund** (Johns Hopkins School of Medicine).

The glycolipid anchor of variant surface glycoproteins in African trypanosomes, **Paul T. Englund**; The role of the surface protease, gp63, in the survival of *Leishmania* parasites, **David G. Russell** (NYU Medical Center); Procyclic surface antigen of *Trypanosoma brucei*, **Christine E. Clayton** (Rockefeller Univ.); The surface proteoglycans of leishmania, **David Sacks** (NIAID); The surface antigens of schistosomes, **Mette Strand** (Johns Hopkins School of Medicine).

**Molecular Biology of Parasites** (Sun/2:30 pm).

Presiding: **Larry Simpson** (UCLA).

RNA editing: A novel RNA processing phenomenon in trypanosome mitochondria, **Larry Simpson**; RNA trans-splicing in parasitic helminths, **Timothy W. Nilsen** (Case Western Reserve Univ.); Gene amplification and genetic analysis in leishmania, **Stephen Beverly** (Harvard School of Medicine); Molecular biology of trypanosomes and leishmania, **Jeffrey V. Ravetch** (Sloan Kettering Cancer Center).

**Poster Session** (Date and time to be announced).

## Short Courses

AAAS will offer two short courses at the 1990 Annual Meeting on Thursday, 15 February. Each of these courses will emphasize learning new skills through step-by-step instruction. A separate registration fee is required (see the advance registration form).

### Computer Simulation for Biomedical Scientists

Organized by **Michael C. Kohn** (Duke Univ.) and **Michael D. Feezor** (Duke Univ.).

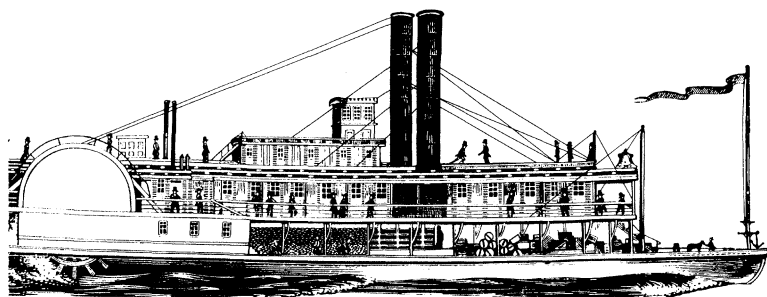
Hands-on training in the use of personal computers to define, create, and run mathematical models for biomedicine. PCs will be provided so that registrants will have the opportunity to create their own models. Topics include the mathematics of simulation, sensitivity to uncertainties, graphing results, and analyzing model behavior. *This course consists of a single half-day session.* **9:00 am:** Using the SCoP Software Package to De-

velop a Model of Drug Metabolism, **Michael C. Kohn** and **Michael D. Feezor**.

### Chaotic Dynamical Systems

Organized by **Robert L. Devaney** (Boston Univ.).

Instruction in how to apply some of the new mathematical tools that can be used to analyze chaotic behavior. Topics include the period doubling route to chaos, higher dimensional dynamical phenomena, strange attractors, fractal basin boundaries, and bifurcations. *This course consists of two half-day sessions.* **9:00 am:** Dynamics of One-Dimensional Maps, **Robert L. Devaney**; Stable and Unstable Chaos in Planar Maps — Hénon's Attractor and Smale's Horseshoe, **Paul Blanchard** (Boston Univ.). **1:30 pm:** Attractors and Their Basin Boundaries, **Kathleen T. Alligood** (George Mason Univ.); The Lorenz Attractor, **Robert F. Williams** (Univ. of Texas - Austin).



# Natural Sciences and Technology

## General

**Symmetries Across the Sciences (Fri/pm).** Subatomic physics; critical phenomena; mathematics; biology; chemistry. *R. Stephen Berry, Michael E. Fisher, Ernest M. Henley, R. E. Marshak, Reinhard F. Stettler, V. S. Varadarajan*

**Maintaining Integrity: The Law and Misconduct in Science (Sat/am).** Data ownership; scientific publications; university procedures; legal remedies. *Albert A. Barber, Lyle Bivens, Anne W. Branscomb, Harold Edgar, Barry D. Gold, Daniel E. Koshland, Jr., Albert H. Teich, Patricia K. Woolf*

**The Frontiers of the Physical Sciences: 1990 (Mon/am-pm).** Hubble telescope; soap bubbles; chemistry; geology; meteorology. *Jacqueline Barton, David K. Campbell, William G. Mankin, Frank Morgan, Colin Norman, Joseph M. Reynolds, Rolf M. Sinclair, Peter Wyllie*

**Exploring the Living Universe: Utilizing Space for Biological Research (Tue/am).** Historical perspective; space biomedicine; gravitational biology; future. *J. Richard Keefe, Franklyn G. Knox, Carolyn S. Leach, Francis D. Moore, Arnauld E. Nicogossian, L. Dennis Smith, Ronald J. White*

## Medicine and Health

**Racial Differences in Hypertension (Fri/am).** Prevalence; hemodynamics; obesity; ion transport; diabetes. *Harriet P. Dustan, Edward D. Frohlich, Lewis Landsberg, Edward J. Roccella, Alan B. Weder*

**Effects of Substance Abuse on Women (Fri/pm).** Fetal development; perinatal management; immune status; family impact. *Monique C. Braude, Loretta P. Finnegan, Denise B. Kandel, Mary Jeanne Kreek, Hazel H. Szeto*

**HIV: The Disease and the Hopes of Treatment and Prevention (Sat/am-pm).** Epidemiology; prevention; molecular biology; vaccines; small animal models; opportunistic infections; new therapies. *Dani P. Bolognesi, Lawrence Corey, James Curran, William A. Haseltine, John J. McGowan, John Mills, Donald E. Mosier, James I. Mullins*

**Progress in Reducing Cardiovascular Diseases (CVD) (Sun/am-pm).** Decline and trends; atherosclerosis; high-risk youth and adults; prevention. *Gerald S. Berenson, Henry Black-*

*burn, Gregory L. Burke, John W. Farquhar, Edward D. Frohlich, Jules Hirsch, Cheryl L. Perry, Jack P. Strong, Thomas J. Thom, Michael F. White*

**Current Issues in Food Safety and Food Labeling (Mon/am-pm).** Diet; health; education; heart disease; cancer; food contamination; risk assessment and perception. *Douglas L. Archer, Susan T. Borra, Darla E. Danford, Sherwin Gardner, Peter Barton Hutt, Henry C. McGill, Jr., Cristine Russell, F. Edward Scarbrough, Robert J. Scheuplein, Barbara Shannon, Frank E. Young*

**Meta-Analysis in Health and Medicine (Fri/pm).** Controlled trials; repeated testing; subgroup analysis; reviews; ethics; publication bias. *Colin C. Begg, Thomas C. Chalmers, Sander Greenland, Nan M. Laird, Ingram Olkin, Marvin Zelen*

## Technical Sessions:

**New Insight Into Physiological Adjustments (Sat/am).** Human-powered flight; body temperature regulation; atrial natriuretic peptide; trauma; atherosclerosis; brain gas interactions. *Robert W. Barbee, Reynaldo S. Elizondo, Frank A. Franklin, Sheldon F. Gottlieb, Charles H. Lang, Ethan R. Nadel, L. Gabriel Navar, John Spitzer, Richard C. Vari*

**Health Professionals, Medical Ethics, and Human Rights in Prisons (Sat/pm).** International law; physician standards and responsibilities. *Kari Hannibal, Robert H. Kirschner, Kenneth P. Moritsugu, Herman Schwartz, Ronald M. Shansky, Kim Marie Thorburn*

**Oral Reconstruction with Dental Implants (Sun/am).** Historical perspectives; materials and host response; instrumentation; bone biology. *Stephen D. Cook, Thomas R. Dirksen, John N. Kent, Ralph V. McKinney, Roland M. Meffert*

**Delivering Quality Health Care: Issues of Effectiveness, Cost, and Competition (Sun/pm).** Assessment of medical practice; health care delivery; quality management. *R. Clifton Bailey, Thomas N. Chirikos, A. Blanton Godfrey, John T. Kelly, Henry Krakauer, William A. Schaffer, Alan M. Sear, Randall K. Spoeri*

**Cochlear Implants in Children (Tue/pm).** Medical and surgical risks; parents' concern; speech performance; signal processing. *Judy Melacon, Richard T. Miyamoto, Mary Joe Osberger, Emily A. Tobey, Blake S. Wilson*

## Biomedical Research

**Nonprimate Lentiviruses: Models for Understanding AIDS (Fri/am).** Equine, feline, bovine, sheep immunodeficiency viruses. *Gary B. Baskin, John H. Elder, Matthew A. Gonda, Ronald C. Montelaro, Opendra Narayan*

**Simian Immunodeficiency Virus (SIV) AIDS Model: Application for Vaccines and Therapy (Fri/pm).** Retroviruses; predictive parameters; immune functions; whole virus experiments; animal models. *Raoul E. Benveniste, Vanessa M. Hirsch, Norman L. Letvin, Louis N. Martin, Michael Murphey-Corb*

**Mapping and Sequencing the Human Genome (Sat/am).** Genetic, physical mapping; NIH; HUGO; ethical, moral, societal issues. *Charles R. Cantor, Elke Jordan, Victor A. McKusick, Nancy S. Wexler*

### Date and Time Key

Thur = 15 February	Mon = 19 February
Fri = 16 February	Tue = 20 February
Sat = 17 February	am = 8:30 am to 11:30 am
Sun = 18 February	pm = 2:30 pm to 5:30 pm

**New Biology and Nutrition (Sat/pm).** Body composition; metabolic beds; calorimetry; mass spectroscopy; integrated facilities. *George A. Bray, James O. Hill, Jules Hirsch, John M. Kinney, Dwight E. Matthews*

**The Use of Animals in Biomedical Research (Sun/am-pm).** Ethical overview; biological research; clinical medicine; alternatives; perspectives. *B. Taylor Bennett, Steve A. Carroll, Victor Cohn, Michael E. DeBakey, Alan M. Goldberg, Frederick K. Goodwin, William E. Jacott, Jerod M. Loeb, Sarah A. Merrill, Adrian R. Morrison, Deborah C. Runkle, M. Roy Schwarz, Richard J. Traystman*

**The Hypothalamus-Pituitary-Adrenal-Immune Axis (Mon/am).** Stressful stimuli; animal models; developmental research; major depression; anorexia nervosa. *Hugo Besedovsky, Francesco Chiappelli, Martin Lowy, Anna N. Taylor, Herbert Weiner*

**Patient-Oriented Research: An Unremitting Record of Successes (Mon/pm).** Osteoporosis; bile acids; hepatitis; growth factors; slow viruses. *E.H. Ahrens, Jr., E. Donnall Thomas, D. Carleton Gajdusek, Alan F. Hofmann, Saul Krugman, Charles Y.C. Pak, Michael O. Thorner*

**Genetic Controls of Metabolic Regulation (Tue/am).** Obesity; food intake; glucose homeostasis; lipid oxidation; mitochondrial metabolism. *June R. Aprille, Carolyn D. Berdanier, Peggy R. Borum, Linda J. Brady, M.R.C. Greenwood, Kathryn F. LaNoue*

**Neurotransplants: Research and Clinical Issues (Tue/am-pm).** Historical perspective; Parkinson's disease; fetal tissue; genetic engineering; ethics and policy. *George S. Allen, Lori B. Andrews, Timothy P. Condon, Thomas Freeman, Fred H. Gage, Thomas H. Murray, Kathleen Nolan, D. Eugene Redmond, Jr., Ralph Reed, Deborah C. Runkle, Richard J. Wyatt*

## Evolution

**Early Life on Earth: What the Rock Record Tells Us (Sat/pm).** Atmosphere; hydrosphere; stromatolites; archean geochemistry and ecology; archean life. *James F. Kasting, Alan J. Kaufman, Donald R. Lowe, Paul K. Strother, Maud M. Walsh*

**The Emergence of Modern Humans: Genes, Fossils, and Behavior (Sun/am).** Paleontology; genetics; archaeology. *Alison S. Brooks, Jeffrey C. Long, C. B. Stringer, Erik Trinkaus, Kenneth M. Weiss*

**The Fossil Evidence for Eve (Sun/pm).** Chinese fossil record; Australasia; African record; Neanderthals; competing models. *David W. Frayer, Geoffrey G. Pope, Fred H. Smith, James N. Spuhler, Alan G. Thorne, Milford H. Wolpoff*

**Symbiosis as a Major Source of Evolutionary Novelty (Mon/am).** Higher taxa; hemiparasites; algae; bioluminescence; undulipodia; microtubules. *David Bermudes, Lynda J. Goff, J. Woodland Hastings, Lynn Margulis*

**Evolution of Microtubule Systems and Mitosis (Mon/pm).** Tubulin isotypes; mitotic systems; *Drosophila*; sensory systems. *Thomas Hays, Richard Luduena, Lynn Margulis, Peter Snusted, Patricia Wadsworth, Dwayne Wise*

## Technical Session:

**Pollen and Sperm Competition: The Importance of the Haploid (Tue/am).** Sexual selection; *Homo sapiens* and predecessors; spiders; primates. *Steven N. Austad, David L. Mulcahy, Geoff A. Parker, Simon Robson, Dorion Sagan, Robert L. Smith, Jonathan K. Waage*

## Geosciences; Natural Hazards

**The Future of Research in the Solid-Earth Sciences (Fri/am).** Water; energy and minerals; surface processes; tectonics. *Paul B. Barton, Kevin Burke, Allen W. Hatheway, Judith Totman Parrish, Peter J. Wyllie*

**Managing Outer Continental Shelf Oil and Gas Resources (Sat/am).** Petroleum engineering; environmental impacts; social costs; bidding and leasing. *Ellen G. Aronson, Kenneth D. Jenkins, William E. King, James J. Opaluch, James L. Smith, Maurice I. Stewart, John M. Teal*

**Future Supplies of Domestic Crude Oil and Natural Gas (Sat/pm).** Domestic supplies; reserve; undiscovered; DOE; Louisiana. *William L. Fisher, Charles G. Groat, Donald A. Juckett, Charles J. Mankin, Benjamin A. Morgan*

**The International Decade for Natural Disaster Reduction (Sun/am).** Disaster impacts; weather and climate; earthquakes; social vulnerability. *Joseph H. Golden, Richard Halgren, Dennis S. Mileti, James K. Mitchell, Joanne M. Nigg, William E. Riebsame*

**Earthquake Hazard and Risk Assessment in the Central United States (Sun/pm).** Seismotectonics; crustal structure; liquefaction; ground motion; costs. *S.T. Algermissen, Robert M. Hamilton, Arch C. Johnston, Brian J. Mitchell, Steven G. Wesnousky*

**Geological Impact of Hurricanes (Mon/am).** Meteorology; submarine geology; coastal processes; landslides; sediment. *John E. Costa, S.A. Hsu, Robert B. Jacobson, Randall W. Jibson, Shea Penland, Joseph N. Suhayda*

**The Magnitude 7.1 California Earthquake of October 1989: Lessons from the Past, Warnings for the Future (Mon/pm).** Earthquakes; hazards; science and policy. *Robert A. Page*

## Technical Sessions:

**Characterization of Ground-water Contamination in the Southeastern United States (Mon/pm).** Florida aquifers; karst aquifer; ethylene dibromide; jet fuel; agrichemicals; brine. *C. Marjorie Aelion, Robert E. Faye, David W. Hicks, Brian G. Katz, Morris L. Maslia, Thomas E. Reilly, James L. Smoot*

**Factors Influencing Responses to Deliberate and Inadvertent Weather Modification (Tue/am).** Rain augmentation; hail suppression; cloud seeding; social factors. *William Beasley, Stanley A. Changnon, Arnett S. Dennis, Barbara C. Farhar, Thomas J. Henderson, Andrew S. Heymsfield, Harold D. Orville*

## Chemistry; Biotechnology

**Frontiers in Chemistry: Chemistry of Clusters (Fri/am).** Sixty-atom clusters; small clusters; silicon theory. *Mary L. Mandich, John L. Margrave, Henry F. Schaefer III, Jean'ne M. Shreeve, Richard E. Smalley*

**Frontiers in Chemistry: Photochemistry (Fri/pm).** Energy flux in gas, liquid, and solid systems. *Paul S. Engel, Marye*

Anne Fox, George S. Hammond, Josef Michl

**The Cold Fusion Case: Ethics and Politics of Scientific Competition** (Sat/pm). Historical precedents; criteria for good science; communication results; questionable science; patenting. Thomas Erber, Thomas F. Gieryn, Marcel C. LaFollette, Ernan McMullin, Ullica C. Segerstrale, Vivian Weil

**Frontiers in Chemistry: Chlorofluorocarbons (CFCs) and Atmospheric Science** (Sun/am). Ozone; upper atmosphere; alternative chemicals. James G. Anderson, Leo E. Manzer, F. Sherwood Rowland, Peter H. Stone, Edel Wasserman

**Medicinal Plants for the Americas: Chemistry and Uses** (Sun/pm). Phytochemistry; ethnobotany; tropics; deserts; Third World. James A. Duke, Sir Leslie Fowden, Mahabir P. Gupta, Robert H. Maybury, Barbara N. Timmermann

**Biodection: Biotechnology Applications in the Environment** (Mon/pm). Molecular and biosensors; antibodies; probes; enzymes. David H. Gillespie, Donald Hilvert, Daphne Kamely, James D. Lear, J. Wallace Parce, James J. Valdes, G. Rickey Welch

#### Technical Sessions:

**Directions in Animal Biotechnology** (Mon/am). Vaccines; transgenics; biologics; modifiers; bioeconomics. Sandra O. Archibald, Marshall Phillips, Leonard E. Post, Vernon G. Pursel, James A. Roth, Mary Jo F. Schmerr

**Economic Aspects of Biotechnological Applications** (Tue/am). Agriculture; acid rain; property rights; assessment. Jeffrey E. Englin, Warren Greenberg, Russell L. Gum, Bruce A. Larson, William E. Martin, John W. McClelland, Leonard G. Schiffrin, Roger A. Sedjo, Robert Taylor

### Physics; Astronomy; Engineering

**The Chance of a Lifetime: Supernova 1987A** (Sun/am). Neutrinos; phenomenology; element formation; pulsar. A.K. Mann, John Middleditch, Mark M. Phillips, Rolf M. Sinclair, J. Craig Wheeler, Stan E. Woosley

**Particle Accelerators of the Future** (Sun/pm). Tevatron; linear colliders; superconducting supercollider; design; innovative concepts. Michael D. Crisp, Hermann A. Grunder, Thomas M. Himel, Leon M. Lederman, G. Plass, Roy F. Schwitters, Robert H. Siemann

**Recent Development in High-Temperature Superconductors** (Mon/pm). Materials and theory; large-scale production; device technology; market prospects. C.W. Chu, Pei-Herng Hor, Harry Kroger, Dan Luss, Edward J. Mead, J. Robert Schrieffer

#### Technical Sessions:

**Engineered Systems and Human Factors: The Nuclear Experience** (Fri/am). Nuclear power; automation; complacency; workload; design; international. G.M. Ballard, P. M. Beard, Jr., Gail H. Marcus, Kenneth C. Rogers, Richard Shikar, John J. Taylor, Earl L. Wiener

**International Development of Advanced Nuclear Power Concepts** (Fri/pm). U.S. programs; utilities; Japan; Europe; prospects. John F. Clarke, Michael W. Golay, Helmut F. Holtbecker, Edwin E. Kintner, Walter B. Loewenstein, Yoshitsugu Mishima, L. Manning Muntzing, John J. Taylor

**Changing Lives: New Technology for People with Disabilities** (Sat/pm). Spinal cord injury; assistive technology; hearing and vision rehabilitation. Charles Berlin, Jan Galvin, Marguerite B. McDonald, Mark Nash, Lynn Phillips, Virginia W. Stern, Carolyn Ward

**Physics as a Provider of Instrumentation for Science and Technology**

(Mon/am). Synchrotron radiation sources; microscopy; magnetometry; digital signals; charged coupling devices. Martin Blume, Robert V. Coleman, Simon Foner, Richard J. Higgins, Gert K. G. Hohenwarter, Rajinder P. Khosla, Lawrence G. Rubin, James F. Schooley

**The Quest for Professional Integrity and Engineering Ethics** (Mon/pm). Curricula; management; values; computer simulation; decision making. Rachelle D. Hollander, Herbert G. Koogler, Rosa Lynn Pinkus, Harold Salzman, Kathleen M. Waggoner

**Current Topics in Physical Acoustics** (Tue/am). Optical sound generation; thermoacoustics; quasi-periodic structures; lithotripsy. Anthony A. Atchley, Henry E. Bass, Yves H. Berthelot, Mark F. Hamilton, Logan Hargrove, Julian D. Maynard, Ronald A. Roy

### Mathematics and Computing

**Strategic Directions in Computing Research** (Fri/pm). Architecture; collaboration; software and systems; neural networks; algorithms. W. Richards Adrion, J.C. Browne, Vinton C. Cerf, Raj Reddy, Arnold L. Rosenberg, David C. Wood, Paul Young

**The Computational Paradigm in Science and Engineering** (Sat/am). Robotics; fluid dynamics; mechanical structures; biology; chemistry; physics. Christoph M. Hoffmann, Melvin H. Kalos, Jacob T. Schwartz, Gregory R. Shubin, Anthony C. Woo

**Supercomputing and Science: Improving the Quality of Life** (Sat/pm). Air quality; biomechanics; biopolymers; animal disease; protein structure. Malvin H. Kalos, Lawrence Lee, Gregory J. McRae, David Onstad, Dean L. Taylor, Lynn F. Ten Eyck

**Understanding the Threat of Computer Viruses** (Sun/am). Magnitude and losses; nature of viruses; computer security and ethics; regulations. J. J. Buck BloomBecker, Lance Hoffman, Stanley A. Kurzban, Eugene H. Spafford, Dennis D. Steinauer, Kenneth R. van Wyk, Fred Weingarten

**Computational and Mathematical Modeling: Oil Production and Water Resources** (Sun/pm). Refined meshes; unstable fronts; Riemann problems; rock pores and microphysics; oil recovery. Richard E. Ewing, James Glimm, Larry W. Lake, W. Brent Lindquist, David J. Wilkinson

**Geometry Today** (Mon/pm). Imaging techniques; string theory; minimal surfaces; quasicrystals. John R. Alexander, Jr., George K. Francis, Herman R. Gluck, Erwin Lutwak, Vladimir Olikier, Gian-Carlo Rota

**Mathematical Methods in the Social Sciences** (Fri/am). Sociology; learning; conflict resolution; brain wave forms; economics. James S. Coleman, William K. Estes, Stephen W. Link, R. Duncan Luce, Patrick Suppes

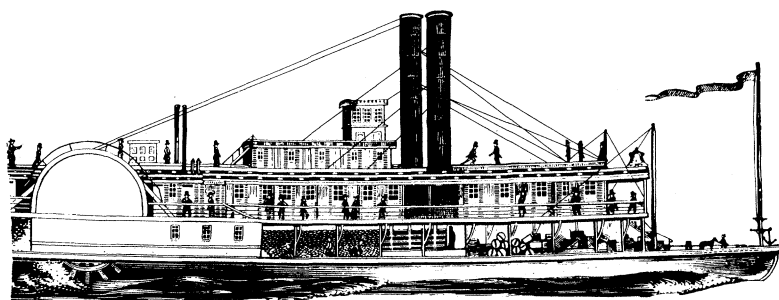
#### Technical Sessions:

**Intellectual Property Rights and Protection for Computer Software and Hardware** (Fri/am). Patent policy; integrated rights; technology problems. E. Steuart Bjornsson, Kenneth L. Cage, Raymond G. Kammer, Robert S. Ledley, David M. Ostfeld

**Radon and Penrose Transforms: Medical Imaging to Supersymmetry** (Mon/am). Tomography; NMR; image reconstruction; Yang-Mills; twistor space. A. M. Cormack, Gabor T. Herman, James V. Peters, Eric Todd Quinto, Lawrence A. Shepp, Raymond O. Wells, Jr.

**Probabilistic Proofs and Their Applications** (Tue/am). Self-checking

Continued on page 1327



# Global Change

## General Issues; Population

**Human Dimensions of Global Environmental Change (Fri/am).** Economic, social, political, regulatory aspects. *Harold K. Jacobson, Roberta Balstad Miller, Steve Rayner, Richard C. Rockwell, Oran R. Young*

**Science, Policy, and Value Issues in Global Environmental Change (Sun/am-pm).** Options; economic aspects; risks; ethics. *Richard N.L. Andrews, Alan D. Beyerchen, Amy Crumpton, Herman E. Daly, Rachelle D. Hollander, Dale Walter Jamieson, Amory B. Lovins, Irving Mintzer, Carl Mitcham, Judith Spiller, Timothy C. Weiskel*

**Global Change in the Geosphere: Scientific Perspective and Public Perceptions (Mon/am).** Glacier, sea-level changes; media attention, public perceptions. *David G. Aubrey, Robert C. Cowan, Annagreta Dyring, Ellen S. Mosely-Thompson, S. Fred Singer, Richard S. Williams, Jr.*

**Science Cooperation in the Pacific (Mon/pm).** Resources; development; biodiversity; earth sciences; oceans. *Dirk Frankenberg, David Halpern, William A. Nierenberg, Victor Rabinowitch, David W. Scholl, David R. Stoddart, Warren H. Wagner, Jr.*

**Cultural Change and Population Growth in an Evolutionary Perspective (Fri/pm).** Pleistocene, neolithic changes; hunter-gatherers; Amazonians; Asia; Africa. *Virginia Abernethy, George J. Armelagos, W. Penn Handwerker, Fekri A. Hassan, Warren M. Hern, Nancy Howell, Roger Revelle*

**Investments in Women: Economic and Demographic Development in the Low-Income World (Sat/am).** Human capital; education; training; gender difference. *John Casterline, Paul Gertler, Elizabeth M. King, T. Paul Schultz*

### Technical Session:

**The Effects of Human Population Growth on Human Environments (Sat/pm).** Rural and urban populations; policies; pressures; economics. *Dennis Ahlburg, Herman Daly, Paul Demeny, Robert Evanson, Eric R. Jensen, Mark Montgomery, Paul Shaw*

## Climate; Global Warming

**Climate Change: Scientific Uncertainties and Policy Responses (Fri/am).** Regional impacts; forecasting; risk assessment; greenhouse effect. *Pierre R. Crosson, Joel Darmstadter, Jae Edmonds, Mancur Olson, Roger R. Revelle, Norman J. Rosenberg, Stephen H. Schneider*

**Climate Change: Models and Policies (Mon/am-pm).** Strengths, weaknesses of models; greenhouse effect; oceans; clouds; circulation. *Guy Brasseur, Wallace Broecker, David M. Burns, Robert Cess, Anthony D. Del Genio, Robert Dickinson, Syukuro Manabe, J.F.B. Mitchell, V. Ramanathan, Roger Revelle, Michael Schlesinger, Joseph Smagorinsky, Warren Washington*

**Fueling Our Future: Energy Policy and the Greenhouse Effect (Fri/pm).** Conservation; warming; regulation; sustainable growth. *Peter Bradford, Michael Brower, Jose Goldemberg, H.M. Hubbard, Irving M. Mintzer, Arthur H. Rosenfeld*

**Climate Change in the Western Hemisphere: 40° N to 40° S (Sat/am-pm).** Climate conditions; impacts and response; tropical forests; agriculture. *Rene Altamirano, Noel J. Brown, José Goldemberg, Orman E. Granger, Stephen P. Leatherman, Diana M. Liverman, George A. Maul, Norman J. Rosenberg, Michael E. Schlesinger, Jürgen A. Schmandt*

**Global Warming: Economic Impacts and Policy Issues (Sun/am-pm).** Greenhouse effect; utilities; regional impacts information value. *Gilbert W. Bassett, Jr., Cary N. Bloyd, Gale A. Boyd, Richard A. Bradley, A. P. Campbell, Donald A. Hanson, Richard F. Kosobud, Daniel A. Lashof, Lester Lave, William D. Nordhaus, Andrew R. Solow, Gary W. Yohe*

**Media Coverage of Drought as a Symptom of Climate Change (Mon/am).** Television; complex topics in media. *Anthony J. Broccoli, Michael Guillen, Michael Lemonick, Carol L. Rogers, Stephen H. Schneider, Lee Wilkins*

### Technical Session:

**Climate and Culture: The Response of Chaco Canyon People to Climate Change (Tue/pm).** Prehistory; water management; cultural complexity; dendrochronology. *Jeffrey S. Dean, Harold Fritts, George Gumerman, Patrick Hogan, Priscilla Reining, Lynne Sebastian, Thomas Sever, Rolf M. Sinclair, Compton J. Tucker, Richard Gwinn Vivian*

## Oceans, Rivers, Coasts

**Food Chains, Yields, Models, and Management of Large Marine Ecosystems (Fri/am-pm).** Northeast and Southeast shelves; Bering Sea; California current; Gulf of Mexico; phytoplankton; biomass; fisheries. *John Beddington, Bradford Brown, Jeremy Collie, Michael Dagg, Paul Falkowski, Barry D. Gold, C. Peter McRoy, Michael Mullin, G. Carleton Ray, Brian J. Rothschild, Kenneth Sherman, Michael P. Sissenwine, Theodore Smayda, James Yoder*

**Coastal Land Loss in Louisiana: Implications for the Nation (Sat/am-pm).** Deltas; natural erosion; human influence; fisheries; Corps of Engineers. *Robert H. Baumann, Stanley A. Changnon, Donald W. Davis, C.G. Groat, Patrick S. Penland, Asbury H. Sallenger, Virginia Van Sickle*

Continued on page 1322

**Plan Ahead!** Use the chart on the following page to schedule your time at the AAAS Annual Meeting.



# AAAS ANNUAL MEETING PLANNER\*

	Friday, 16 February	Saturday, 17 February	Sunday, 18 February	Monday, 19 February	Tuesday, 20 February
NATURAL SCIENCES AND TECHNOLOGY	<b>General</b>	<b>PM:</b> Symmetries Across the Sciences.	<b>AM:</b> Maintaining Integrity: Law and Misconduct in Science.	<b>AM/PM:</b> Frontiers of the Physical Sciences: 1990.	<b>AM:</b> Exploring the Living Universe: Utilizing Space for Biological Research.
	<b>Medicine and Health</b>	<b>AM:</b> Racial Differences in Hypertension. <b>PM:</b> Substance Abuse Effects in Women. <b>PM:</b> Meta-analysis in Health & Medicine.	<b>AM:</b> New Insight into Exercise Physiology. <b>AM/PM:</b> Progress in AIDS Treatment. <b>PM:</b> Health Professionals, Med. Ethics, Human Rights in Prisons.	<b>AM/PM:</b> Dental Implants. <b>AM/PM:</b> Reducing Cardiovascular Disease. <b>PM:</b> Quality Health Care: Cost Effectiveness and Competition.	<b>PM:</b> Cochlear Implants in Children.
	<b>Biomedical Research</b>	<b>AM:</b> Nonprimate Lentiviruses: Models for AIDS. <b>PM:</b> Simian AIDS Model: Vaccines & Therapy.	<b>AM:</b> Mapping and Sequencing the Human Genome. <b>PM:</b> New Biology and Nutrition.	<b>AM/PM:</b> The Use of Animals in Biomedical Research	<b>AM:</b> Hypothalamus-Pituitary-Adrenal-Immune Axis. <b>PM:</b> Patient-Oriented Research: An Unremitting Record of Successes.
	<b>Evolution</b>		<b>PM:</b> Early Life on Earth: The Rock Record.	<b>AM:</b> Emergence of Modern Humans: Genes, Fossils, and Behavior. <b>PM:</b> Fossil Evidence for Eve.	<b>AM:</b> Symbiosis as a Major Source of Evolutionary Novelty. <b>PM:</b> Evolution of Microtubule Systems and Mitosis.
	<b>Geosciences; Natural Hazards</b>	<b>AM:</b> Research in Solid-Earth Sciences.	<b>AM:</b> Managing Outer Continental Shelf Oil and Gas Resources. <b>PM:</b> Improved Recovery of Oil and Gas from Existing Fields.	<b>AM:</b> International Decade of Natural Disaster Reduction. <b>PM:</b> Earthquake Hazard and Risk Assessment in Central United States.	<b>AM:</b> Geological Impact of Hurricanes. <b>PM:</b> The California Earthquake of '89. <b>PM:</b> Groundwater Contamination in the Southeastern United States.
	<b>Chemistry; Biotechnology</b>	<b>AM:</b> Frontiers: Chemistry of Clusters. <b>PM:</b> Frontiers: Photochemistry.	<b>PM:</b> The Cold Fusion Case: Ethics and Politics of Scientific Competition.	<b>AM:</b> Frontiers: Chlorofluorocarbons and Atmospheric Science. <b>PM:</b> Medicinal Plants for the Americas: Chemistry, Uses, Prospects.	<b>AM:</b> Directions in Animal Biotechnology. <b>PM:</b> Biodegradation: Biotechnology Applications in the Environment.
	<b>Physics; Astronomy; Engineering</b>	<b>AM:</b> Engineered Systems & Human Factors: Nuclear Experience. <b>PM:</b> International Advanced Nuclear Power Concepts.	<b>PM:</b> New Technology for People with Disabilities.	<b>AM:</b> Supernova 1987A. <b>PM:</b> Particle Accelerators of the Future.	<b>AM:</b> Physics Instrumentation for Science and Technology. <b>PM:</b> High Temperature Superconductors. <b>PM:</b> Prof. Integrity and Engineering Ethics.
	<b>Mathematics and Computing</b>	<b>AM:</b> Intellectual Property Rights: Computer Software & Hardware. <b>AM:</b> Math. Methods in Social Sciences. <b>PM:</b> Computing Research.	<b>AM:</b> The Computational Paradigm in Science and Engineering. <b>PM:</b> Supercomputing and Science: Improving the Quality of Life.	<b>AM:</b> Understanding Computer Viruses. <b>PM:</b> Computational and Mathematical Modeling: Oil Production and Water Resources.	<b>AM:</b> Radon and Penrose Transforms: Medical Imaging to Supersymmetry. <b>PM:</b> Geometry Today.
	<b>Popular Science</b>	<b>AM:</b> Science, Culture & Cajun Cooking.	<b>AM/PM:</b> Science for the Naked Eye: or, the Physics of Everyday Experience, XVII.	<b>AM/PM:</b> Creatures That Fly: Birds, Bats, Bees, and Bugs.	<b>AM:</b> Chemistry Is Fun! <b>PM:</b> High Technology and Future Automobiles and Highway Systems.
GLOBAL CHANGE	<b>General Issues; Population</b>	<b>AM:</b> Humans & Global Environmental Change. <b>PM:</b> Cultural Change & Population Growth.	<b>AM:</b> Women: Econ. & Demographic Develop. in the Low-Income World. <b>PM:</b> Effects of Human Population Growth on Human Environments.	<b>AM/PM:</b> Science, Policy, and Value Issues in Global Environmental Change.	<b>AM:</b> Global Change: Scientific and Public Perceptions. <b>PM:</b> Science Cooperation in the Pacific.
	<b>Climate; Global Warming</b>	<b>AM:</b> Climate Change: Science/Policy. <b>PM:</b> Energy Policy & Greenhouse Effect.	<b>AM/PM:</b> Climate Change in the Western Hemisphere: 40° N – 40° S.	<b>AM/PM:</b> Global Warming: Economic Impacts and Policy Issues.	<b>AM:</b> Media Coverage of Drought as a Symptom of Climate Change. <b>AM/PM:</b> Climate Change: Models and Policies.
	<b>Oceans, Rivers, Coasts</b>	<b>AM/PM:</b> Food Chains & Large Marine Ecosystems.	<b>AM/PM:</b> Coastal Land Loss in Louisiana.	<b>AM/PM:</b> The Mississippi River: System, Resource, Hazard.	<b>AM:</b> Sea-Level Rise as a Global Geomorphic Issue. <b>PM:</b> Riparian Resources in Arid Lands



<b>GLOBAL CHANGE</b>	<b>Ecology; Biological Diversity</b>	<b>AM/PM:</b> Molecular Studies of Biological Diversity.	<b>AM:</b> Biological Diversity in Southeastern United States.	<b>AM/PM:</b> Biodiversity in Marine and Terrestrial Habitats.	<b>AM:</b> Chaos in the Balance of Nature.	<b>AM:</b> Arid Lands: Wilderness or Wasteland? <b>AM:</b> Biological Diversity and Agriculture.
	<b>Tropical Forests; Forestry</b>	<b>AM/PM:</b> Social Science & Environmental Management.	<b>AM:</b> Social Science & Environmental Management. <b>PM:</b> Amazonia, A Dynamic Habitat: Past, Present, and Future.	<b>AM/PM:</b> Amazonia, A Dynamic Habitat: Past, Present, and Future.	<b>AM/PM:</b> Tropical Forest Regeneration: Development and Conservation.	<b>AM:</b> Advances in Forest Science.
	<b>Agriculture; Food</b>	<b>AM:</b> U.S. Aquaculture. <b>PM:</b> Shrimp Aquaculture: Latin American Impacts.	<b>AM:</b> Beyond the Large Farm: Ethics and Agricultural Research. <b>AM:</b> Fisheries Management and Policy. <b>PM:</b> Biological Control of Plant Diseases.	<b>AM:</b> Mycoherbicides: Biological Control of Weeds. <b>AM:</b> Intellectual Property Rights: Plants and Animals. <b>PM:</b> Biological Control of Insects.	<b>AM/PM:</b> Sustainable Agriculture: Definitions and Impacts.	<b>AM:</b> Agricultural Biotechnology: Social and Ethical Issues.
	<b>Environmental Concerns</b>	<b>AM:</b> Pesticides: Developing Countries. <b>PM:</b> Agricultural Chemicals & Water Quality.	<b>AM:</b> Environ./Health Effects of Agrochemicals. <b>PM:</b> Foreign Assistance & Environ. Probs. in Developing Countries. <b>PM:</b> Science & Environ. Law.	<b>AM/PM:</b> Two Decades of Environmentalism. <b>PM:</b> International Environmental Reporting.	<b>AM:</b> Human Response to Physical Systems Extremes. <b>AM/PM:</b> Chemical Emissions to Air, Water, and Soil: Science, Data, and Policy.	<b>AM:</b> Risks of Halogenated Hydrocarbons in the Environment.
<b>SOCIAL SCIENCES AND SCIENCE POLICY</b>	<b>Human Resources</b>	<b>AM:</b> Expanding Participation in Science & Engineering. <b>AM:</b> Choosing Careers: Medicine. <b>PM:</b> Marginalization & Creativity in Science.	<b>AM:</b> Expanding Science/Engineering Talent Pool. <b>AM:</b> NSF Fellowship Program. <b>PM:</b> The Changing Nature of Graduate Education in the Sciences.	<b>AM:</b> Expanding the Science and Engineering Talent Pool. <b>AM/PM:</b> Surviving Graduate School. <b>PM:</b> Job Hunting Skills. <b>PM:</b> Science for Minorities.	<b>AM/PM:</b> Senior Scientists and Engineers as Volunteers.	<b>AM:</b> Science as a Vocation: Prospects of Young Scientists. <b>PM:</b> Women Scientists in Early Career Years: Strategies for Success.
	<b>Behavioral Sciences; Gender Studies</b>	<b>AM:</b> Genes, Environment & Human Behavior. <b>PM:</b> Emotion & Developing Brain.	<b>AM:</b> Empathy in Infancy and Later Development. <b>PM:</b> New Developments in the Genetics of Mental Illness.	<b>AM:</b> Human Sexuality: An Interdisciplinary Perspective. <b>PM:</b> Surveying Sexual Behavior.	<b>AM:</b> The Psychology of Jury Decision Making.	
	<b>Anthropology and Archaeology; Racial Studies</b>	<b>AM/PM:</b> Evolutionary Biology & Human Behavior: Race & Gender.			<b>PM:</b> How Archaeologists Know: Interdisciplinary Methods for Archaeological Problems.	<b>AM:</b> A Different World: The Mississippi Valley Before 1492.
	<b>Sociology; Political Science; Aging</b>	<b>PM:</b> Teenage Pregnancy.	<b>AM:</b> Aging Processes: Phylogenetic and Cognitive Approaches.	<b>AM:</b> Intergenerational Relations and Family Support Networks. <b>PM:</b> Reapportionment and Redistricting for the 1990s: Politics & Data.	<b>AM:</b> <i>Perestroika</i> and Scientific Freedom in the Soviet Union. <b>PM:</b> Democracy and Science in Latin America.	<b>AM:</b> Social Science and Public Policy.
	<b>Economics and Industry; Communications</b>	<b>PM:</b> "Informatization" of the USSR.	<b>AM:</b> Scientists and the Current Crisis in Science Libraries. <b>PM:</b> Computer Networking, Education, and International Relations.	<b>AM:</b> American Competitiveness Since the Dollar's Fall: What Policies? <b>PM:</b> Information Technologies for Competitiveness of Service Firms.	<b>AM:</b> University-Industry Ties: Blessings and Headaches. <b>PM:</b> Writing Strategies for Scientists and Engineers.	<b>AM:</b> Current Issues in the Geographical Distribution of Federal Research Funding. <b>PM:</b> Technology and Trade Policy.
	<b>Arms Control</b>	<b>AM:</b> Threshold Test Ban Limit Verification. <b>PM:</b> Technology-Based Confidence Building.	<b>AM:</b> Arms Control Verification: Progress and Challenges. <b>PM:</b> The Iran-Iraq War: Mediation and Conflict Resolution.	<b>AM:</b> Chemical Weapons Proliferation or Chemical Disarmament? <b>PM:</b> Living with the ABM Treaty in the 1990s.	<b>AM:</b> Ballistic Missiles: Policy Options for the Future. <b>PM:</b> Deep Cuts in European Forces: NATO/Warsaw Pact Agreement?	
	<b>History and Philosophy of Science</b>	<b>AM:</b> Rhetoric of Science. <b>AM/PM:</b> R. A. Fisher's Contributions.	<b>AM:</b> Universe in Philosophical Perspective. <b>PM:</b> Researching Controversial Religious Groups.	<b>AM:</b> Rediscovery of Alexandria: Science, Religion, and the Churches. <b>PM:</b> Young Einstein.	<b>PM:</b> Metaphors in Science: Their Role in Theory and Discovery.	<b>PM:</b> New Directions in the Philosophy of Mathematics.
	<b>Education, General</b>	<b>AM:</b> Japan & US: Pre-adult Attitudes Toward Science & Math.	<b>AM:</b> Science Education in Latin America. <b>PM:</b> Revitalizing Science and Engineering Education Through New Uses of Technology.	<b>AM:</b> Assessing Scientific Literacy. <b>PM:</b> Scientific Writing: Recommendations and Resources.	<b>AM:</b> Value to Scientific Literacy of Science Trade Books for Children. <b>PM:</b> What's Going On in the World of Science Museums?	<b>AM:</b> Scientist-Teacher Partnerships in Middle School Science and Technology Education. <b>PM:</b> Science and Science Fiction.
	<b>Education, Curricula</b>	<b>AM:</b> Geological Sciences in Science Education. <b>PM:</b> Fifteen Years of Marine Education.	<b>AM:</b> Reform of Secondary School Science. <b>PM:</b> Developing New Curricula for Calculus, Physics, and Chemistry.	<b>AM:</b> Beyond the Textbook: New Models for Learning Biology. <b>PM:</b> Innovations in the Undergraduate Science Curriculum.		<b>AM:</b> Quantitative Literacy: Probability and Statistics in the Curriculum.

\*This planner includes all symposia, technical sessions, and workshops for Friday through Tuesday. It does not include seminars, short courses, or any Thursday sessions.

**Global Change**, continued from page 1319

**The Mississippi River: System, Resource, Hazard** (Sun/am-pm). Geomorphic evolution; hydroclimatology; sediments; human impacts; river control; deltas. *Richard V. Anderson, Katherine K. Hirschboeck, Raphael G. Kazmann, Richard H. Kesel, James C. Knox, Michael C. Robinson, Roger T. Saucier, Stanley A. Schumm, John F. Shroder, Jr., James R. Tuttle, John D. Vitek, H. Jesse Walker*

**Sea-Level Rise as a Global Geomorphic Issue** (Mon/am). Causes; beaches; salt marshes; mangrove swamps; reefs. *Robert W. Buddemeier, Stephen P. Leatherman, Denise J. Reed, David R. Stoddart, H. Jesse Walker, Colin D. Woodroffe*

**Changes in Worldwide Riverine Inputs: How Do Coastal Oceans Respond?** (Tue/am). Sediments; anthropogenic loading; land management; Chesapeake Bay; Mississippi River. *W. Michael Kemp, Brent A. McKee, Michel Meybeck, John D. Milliman, Robert R. Twilley*

**Scientific Opportunities in Offshore Technology** (Tue/am-pm). Ocean enterprises; mining; waste disposal; thermal energy conversion; ocean platforms; gas hydrates. *Walter L. Bradley, Michael Champ, John Craven, Wayne A. Dunlap, John E. Flipse, Leroy S. Fletcher, Clifford E. McLain, J. Robert Moore, Mel Peterson, Patrick K. Takahashi*

**Technical Session:**

**Riparian Resources in Arid Lands** (Mon/pm). Historical perspective; stream dynamics; vegetation; policy. *Hannah J. Cortner, Leonard F. De Bano, Wayne Elmore, G. Fred Gifford, Lee Lamb, Richard N. Ross, Anthony J. Svejcar, Sherman R. Swanson, Al Winward, Ervin H. Zube*

**Ecology; Biological Diversity**

**Molecular Studies of Biological Diversity** (Fri/am-pm). Human populations; ribosomal RNA sequences; eukaryotic genomes; gene expression; selection and drift; origin of proteins. *Charles F. Aquadro, Prescott Deininger, W. Joseph Dickinson, David M. Hillis, David M. Irwin, Nancy Maizels, Robert K. Selander, Mitchell L. Sogin, Linda Vigilant, Allan C. Wilson, Elizabeth Anne Zimmer*

**Biological Diversity in the Southeastern United States: Case Studies** (Sat/am). Historical perspective; wetlands and flood plains; deciduous forests; estuaries; conservation. *Arthur W. Cooper, Larry D. Harris, William H. Martin, William E.*

**Access to AGU/ASLO Meeting**

Registrants of the AAAS Annual Meeting will also have free access to the combined meeting in New Orleans of the **American Geophysical Union and the American Society of Limnology and Oceanography** (12 – 16 February 1990).

Just register for the AAAS Annual Meeting by mail **before the 12 January deadline**, and you'll receive your AAAS registration badge in time to use it for the AGU/ASLO conference. (Those who register after this date will not obtain their badges until after AAAS on-site registration begins on 15 February.)

*Odum, Jerry C. Ritchie, Rebecca R. Sharitz, Peter S. White*

**Biodiversity in Marine and Terrestrial Habitats** (Sun/am-pm). Biogeography; cetaceans; fishes; benthos; food webs; patch dynamics; dispersal; coral reefs. *James M. Broadus III, Martin A. Buzas, Stephen J. Culver, J. Frederick Grassle, Jeremy Jackson, Nancy J. Maciolek, Robert M. May, William F. Perrin, G. Carleton Ray, C. Richard Robins, J. John Sepkoski, Jr., John H. Steele, George Sugihara*

**Arid Lands: Wilderness or Wasteland?** (Tue/am). Waste repositories; cultural resources; game management; political considerations. *Richard M. Alston, Mark S. Boyce, Cyrus M. McKell, Kent Ostler, D. Wayne Owens, Edward B. Weil, Samuel I. Zeveloff*

**Technical Sessions:**

**Chaos in the Balance of Nature** (Mon/am). Complex dynamics; chemostats; agricultural pests; ecology. *J.C. Allen, Mark Kot, William F. Morris, Stuart L. Pimm, William M. Schaffer, B. R. West*

**Biological Diversity and Agriculture** (Tue/am). Ecosystems; microbes in soil; chemicals; sustainable agriculture. *Ralph Baker, Robert L. Bugg, L. E. Ehler, Stephen R. Gliessman, David Pimentel, Amy Auerbacher Wilson*

**Tropical Forests; Forestry**

**Social Science Perspectives on Environmental Management: Past and Present** (Fri/am-pm; Sat/am). Prehistoric management; Southwest United States; Costa Rica; Levant; Turkey; Peru; Indonesia; Philippines. *Eduardo Bedoya, Jane L. Collins, Billie R. Dewalt, James F. Eder, Clark L. Erickson, Suzanne K. Fish, Timothy A. Kohler, Christine Padoch, Gary O. Rollefson, Marianne Schmink, Donald G. Sullivan*

**Amazonia, A Dynamic Habitat: Past, Present, and Future** (Sat/pm; Sun/am-pm). Paleo-ecology; geomorphology; climatology; ethnology; forest management; agronomy; conservation; politics. *Paulo Alvim, Stephen G. Bunker, Michael B. Bush, Kenneth E. Campbell, Carlos Coimbra, Jr., Paul A. Colinvaux, Jane Collins, Elem Cutrim, Ronald Foresta, Archibald Haller, M. Miller, D. Piperno, Darrell Addison Posey, Kent H. Redford, Anna C. Roosevelt, Marianne Schmink, Nigel J. H. Smith, M. Steinitz-Katz, Virgilio Viana*

**Tropical Forest Regeneration: Development and Conservation** (Mon/am-pm). Genetic resources; economics; Third-World debt; political realities. *Augustin Barrios Gomez, Hans P. Binswanger, F. William Burley, Robert J. Buschbacher, Maria de Lourdes Davis De Freitas, Carlos Alfredo Joly, Michael B. McElroy, Lander Pacora, Robert L. Randall, Roger Andrew Sedjo*

**Technical Session:**

**Advances in Forest Science** (Tue/am). Satellite imagery; genetic resistance, susceptibility; gene insertion; biotechnology. *Alan R. Ek, Bruce E. Haissig, Roger M. Hoffer, David R. Houston, T. Kent Kirk, Robert F. Powers, Anne-Marie Stomp*

**Agriculture; Food**

**Biological Control of Plant Diseases** (Sat/pm). Concepts and mechanisms; post-harvest diseases; colonizing bacteria; seed treatment. *Paul A. Backman, R. James Cook, Gary E. Harman, Jack A. Lewis, George C. Papavizas, Jennifer L. Parke, Charles L. Wilson*

**Mycoherbicides: Biological Control of Weeds (Sun/am).** Fungal pathogenesis; genetic transformation; pest control; commercialization. *James S. Bannon, William J. Connick, Jr., Abraham H. Epstein, George E. Templeton, Alan K. Watson, Olen C. Yoder*

**Biological Control of Insects: Directions for the Future (Sun/pm).** Perspective; government, university roles; predators, parasitoids; genetic manipulation; biotechnology interface. *Les E. Ehler, Frank E. Gilstrap, Robert R. Granados, Les C. Lewis, John J. Obrycki, David B. Orr, Richard T. Roush*

**Sustainable Agriculture (Mon/am-pm).** Definitions; integrated farm systems; social issues; profitability; tillage and cultivation; pest management; fertility. *P.J. Bramel-Cox, R.M. Cruse, Montague W. Demment, Thomas Edens, Charles Francis, Kenneth Frey, Robert M. Goodman, Richard Harwood, Paul F. Hendrix, John E. Ikerd, Dennis Kenney, Larry D. King, William Lockeretz, Donald Nielsen, D. William Rains*

**The Current Status of Aquaculture in the United States (Fri/am).** Cooperative ventures; business; basic research. *Robert B. Abel, Noel J. Blackman, James McVey, Martin P. Schreiber, Bruce Sharfstein*

**Shrimp Aquaculture: Impacts on Latin American Economies, Environments, and Social Structure (Fri/pm).** Role in development; reproduction; production systems; cultural aspects. *George W. Chamberlain, Sarah K. Meltzoff, Joseph J. Molnar, Richard M. Pretto, David B. Rouse, Robert R. Twilley*

#### Technical Sessions:

**Beyond the Large Farm: Ethics and Agricultural Research (Sat/am).** Regulatory policy; risk; environmental ethics; development; systems approach. *Vernon B. Cardwell, Billie D. DeWalt, David R. MacKenzie, Bryan G. Norton, Bill A. Stout, Paul B. Thompson*

**Fisheries Management and Policy (Sat/am).** Privatization; Magnuson Act; regulation; sports fisheries. *Lee G. Anderson, Yoshiaki Kaoru, J.L. McHugh, Morton M. Miller, Gordon Munro, Giulio Pontecorvo, Jon G. Sutinen*

**Intellectual Property Rights for Agricultural Plants and Animals (Sun/am).** Patenting; biotechnology; germ plasm exchange; plant variety; animal breeding. *Robert F. Barnes, John H. Barton, Robert B. Nicholas, Kevin W. O'Connor, Richard K. Perrin, Charles F. Warren, Robert G. Zimelman*

**Agricultural Biotechnology: Social and Ethical Issues (Tue/am).** Sociology; Third-World farming; engineered microbes and plants; deliberate release. *Rita R. Colwell, Steven M. Gendel, Fred Gould, Peter Haywood, A. David Kline, Hope J. Shand, D. Michael Warren*

## Environmental Concerns

**Foreign Assistance and Environmental Problems in Developing Countries (Sat/pm).** Brazil and Latin America; lending agencies; national donors. *Mohamed T. El-Ashry, Carlos H. Fonseca, Koji Kakizawa, Marita R. Koch-Weser, Jeffrey H. Leonard, Clifford S. Russell*

**Risks of Halogenated Hydrocarbons in the Environment (Tue/am).** PCBs; dioxins; solvents; hazardous wastes. *Gary F. Bennett, Peter S. Daley, William J. George, Renate D. Kimbrough, Stephen H. Safe, Hans Weill*

#### Technical Sessions:

**The Future Role of Pesticides in Developing Countries (Fri/am).** Population growth; pest management; safety; development assistance. *William L. Hollis, Polly J. Hoppin, Hiram G. Larew, George A. Schaeffers, B. Merle Shepard*

**Agricultural Chemicals and Water Quality: Integration of Physical Science and Economics (Fri/pm).** Mechanistic and indexing models; ecological risks; usage patterns; economic issues; incentives. *Kenneth A. Algozin, Stephen M. Frerichs, Leonard P. Gianessi, Dana L. Hoag, A.G. Hornsby, Sally M. Kane, Jay H. Lehr, Thomas E. Waddell*

**Environmental and Health Effects of Agrochemicals: A Cross-Disciplinary Perspective (Sat/am).** Measuring and valuating effects; pesticides in rice and potato production. *John M. Antle, Susan Capalbo, Charles C. Crissman, Kenneth Farrell, Michael Gough, Prabhu Pingali*

**Uses of Science in Environmental Law (Sat/pm).** Regulation; science advice; legal vs. scientific causation. *John R. Allison, Michel F. Baumeister, Bert Black, Daniel A. Bronstein, Joseph F. DiMento, Thomas W. Henderson, Sheila Jasanoff, James M. Melius, William A. Thomas, Terry F. Yosie*

**Two Decades of Environmentalism (Sun/am-pm).** Historical perspective; national lobby; health problems; global problems; radical movement; public opinion; policy and regulation. *Lynton K. Caldwell, Bill Devall, Thomas M. Dietz, Riley E. Dunlap, Nicholas Freudenberg, J. William Futrell, Samuel P. Hays, Michael McCloskey, Joseph W. Meeker, Robert Cameron Mitchell, Nicholas Freudenberg, Paul R. Portney, Walter A. Rosenbaum, Robert W. Rycroft, Carol Steinsapir*

**Ground-Level Views of Global Problems: International Environmental Reporting (Sun/pm).** Biodiversity; deforestation; industrialization; development; hazards. *Tahmina Ahmad, James Cornell, Darryl D'Monte, Fabiola de Oliveira, Sharon M. Friedman, Françoise Monier, Charunee Thongtham, Tensie Whelan*

**Human Response to Physical Systems Extremes (Mon/am).** Risk from extreme events; environmental perspective; development; water supply. *Ian Burton, Vincent Covelto, Kingsley E. Haynes, Roger E. Kasperon, T.R. Lakshmanan, Roger R. Stough, Dale Whittington, Thomas J. Wilbanks*

**Chemical Emissions to Air, Water, and Soil: Science, Data, and Policy (Mon/am-pm).** Toxic release inventories; emissions; plant contamination; human exposure. *Donald G. Browne, Sally A. Campbell, Jacqueline Courteau, Jeanne Herb, Robert M. Hirsch, Ed Hopkins, Stanley R. Johnson, Donald Mackay, Thomas E. McKone, Warren R. Muir, S. Patterson, David Sarokin, Greg Wetstone, Jeffrey J. Wong*

Continued on page 1327

## Discount Air Fares

United Airlines and Delta Air Lines offer the following special discount fares to the Annual Meeting in New Orleans for travel during 10-25 February 1990:

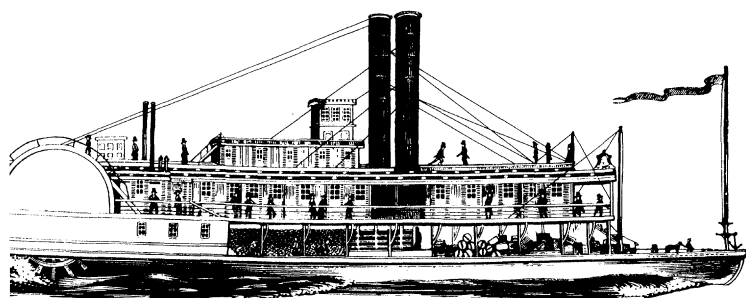
**5% off** lowest published round-trip fares, subject to availability and qualifying conditions, and 5% off first class (not available in Canada).

**40% off** regular round-trip fares; no minimum stay, no advance purchase required (in Canada, discounts up to 35% only).

These discounts are available only through the airlines' convention reservation desks, and seats may be limited. For details, you or your travel agent should call one of the toll-free numbers listed here and refer to the appropriate convention code number:

**United Airlines:** Convention Code 0004D. In the USA (incl. HI, AK) or Canada, call 7 days a week, 8:00 am – 11:00 pm Eastern time: 1-800-521-4041.

**Delta Air Lines:** Convention Code R0030. In the USA (incl. HI, AK, PR), call 7 days a week, 8:00 am – 8:00 pm Eastern time: 1-800-241-6760. In Canada, call Delta locally.



# Social Sciences & Science Policy

## Human Resources

**The National Survey of Efforts to Expand Participation in Science and Engineering Colleges and Universities (Fri/am).** Research universities; women's colleges; minority institutions. *Beatriz C. Clewell, Yolanda S. George, Sue Kemnitzer, Marsha Lakes Matyas, Willie Pearson, Jr.*

**Marginalization Processes in Science: Historical and Contemporary Perspectives (Fri/pm).** Orthodoxy and innovation; gender; cold fusion; physics. *Pnina G. Abir-Am, Robert Marc Friedman, Thomas F. Gieryn, Camille Limoges, Seymour H. Mauskopf, Bonnie B. Spanier, Frank J. Sulloway, Doris T. Zallen*

**College and Graduate Issues in Expanding the Science and Engineering Talent Pool (Sat/am).** Overview of pipeline; colleges and universities; filling faculty ranks. *Daryl E. Chubin, Alan Fechter, Shirley M. Malcom, Marsha Lakes Matyas, Willie Pearson, Jr., Betty M. Vetter*

**Precollege Issues in Expanding the Science and Engineering Talent Pool (Sun/am).** Overview of pipeline; next generation; learning experience; tracking. *Carolyn Chestnutt-Thorsen, Daryl E. Chubin, Jerrilee Grandy, Shirley M. Malcom, Jeannie Oakes, Willie Pearson, Jr., Betty M. Vetter, Iris R. Weiss*

### Technical Sessions:

**Choosing Careers in Medicine and Medical Science (Fri/am).** Trends and projections; minority recruitment; physician scientists. *Walter H. Abelman, Daniel D. Federman, Jules Hirsch, W. Clifford Newman, Joseph Perpich, Robert G. Petersdorf, Morton Slater*

**Nurturing the Next Generation of Researchers: The NSF Fellowship Program (Sat/am).** Perspective; graduate education; research careers. *John Crowley, John H. D'Arms, Alan Fechter, Stephen J. Gould, Robert Hanson, Mary Lou R. Pardue, Bassam Z. Shakhashiri*

**The Changing Nature of Graduate Education in the Sciences (Sat/pm).** Time to the doctorate; dissertations; proprietary concerns. *Leonard L. Baird, Alison P. Casarett, Jules B. LaPidus, Howard Tuckman*

**Science as a Vocation: The Circumstances and Prospects of Young Scientists (Tue/am).** Graduate education; ethical training; human resources; academic marginals. *Patricia J. Gumpert, Edward J. Hackett, Carlos E. Kruytbosch, Karen Seashore Louis*

### Workshops:

**Surviving Graduate School: What to Expect from Your Advisor (Sun/am).** Discussion panel. *Matthew George, Jane Butler Kahle, Marsha Lakes Matyas*

**Is There Life After Graduate School? Job Hunting Skills for New Graduates and Postdocs (Sun/pm).** Discussion panel. *Harriet H. Kagiwada, Samuel E. Massenberg, Marsha Lakes Matyas*

**Precollege Science Programs for Minorities: Approaches and Interventions (Sun/pm).** Disabled students; marine education; outreach; technical education; mathematics. *Rose Dios, Ronald Gautreau, Howard Kimmel, Lisa Novemsky, Barbara Ann Syers, Frieda Zames*

**Senior Scientists and Engineers as Volunteers (Mon/am-pm).** School programs; demonstration projects; informal networks; career choices. *Philip H.*

*Abelson, Donald K. Black, Robert F. Content, Ted Drury, Calvin A. Lang, Raymond A. Mathieu, Michael Michaelis, Edward J. Poziomek, Harold I. Sharlin, Lauren A. Williams*

**Women Scientists in Early Career Years: Strategies for Success (Tue/pm).** Beginning careers; graduate years; industry; academia; minorities. *Melinda Bartley, Harriet H.N. Kagiwada, Jane Butler Kahle, Sue Kemnitzer, Marsha Lakes Matyas*

## Behavioral Sciences; Gender Studies

**Genes, Environment, and Human Behavior: Understanding Human Differences (Fri/am).** Twin studies; personality; behavioral development; home environment; religion. *Thomas J. Bouchard, Jr., Lindon J. Eaves, David W. Fulker, Andrew C. Heath*

**Emotion and the Developing Brain (Fri/pm).** Neonatal imitation; lateralization; asymmetry; temperament; neurobehavior. *Catherine T. Best, Tiffany M. Field, Nathan A. Fox, Carroll E. Izard, Mary K. Rothbart*

**New Developments in the Genetics of Mental Illness (Sat/pm).** Molecular genetics; schizophrenia; manic depression; Alzheimer's disease; psychiatric disorders. *Miron Baron, Anne S. Bassett, Barbara A. Cornblatt, Kenneth K. Kidd, Neil J. Risch, Peter St. George-Hyslop*

**Empathy in Infancy and Later Development (Sat/am).** Response to distress cries; moral development; neural correlates; adaptability; self concept. *Leslie A. Brothers, Nancy Eisenberg, Martin L. Hoffman, Bert S. Moore, Thomas J. Tighe, Carolyn J. Zahn-Waxler*

**Human Sexuality: An Interdisciplinary Perspective (Sun/am).** Genes and biochemistry; cultural aspects; comparative religion; medical consequences; models. *Anne Bolin, Vern L. Bullough, Terri Fisher, Robert Thomas Francoeur, Robert Friar, Suzanne G. Frayser, Bernard Goldstein*

**Surveying Sexual Behavior (Sun/pm).** HIV seroprevalence; AIDS cases; adult behavior; teenage males; national survey. *John H. Gagnon, Edward O. Laumann, Robert T. Michael, Tom W. Smith, Freya Lund Sonnenstein, Michael F. Weeks, James A. Wiley*

**The Psychology of Jury Decision Making (Mon/am).** Jury size; expert witnesses; biases. *Eugene Borgida, Bert S. Moore, Steven D. Penrod, David L. Rosenhan, Drury R. Sherrod, William C. Thompson, Thomas J. Tighe*

## Anthropology and Archaeology; Racial Studies

**Evolutionary Biology and Human Behavior: Contributions to Race/Gender Concepts (Fri/am-pm).** Methodo-

logical flaws; biological categories; cultural context; scientific racism; population genetics; eugenics. *Garland E. Allen, Bonnie Ellen Bluestein, Linda Burnham, Linnda R. Caporeale, Geraldine J. Casey, Frederica Y. Daly, Gerald Horne, Ruth Hubbard, Barry Mehler, Betty Rosoff, Joan Rothschild, Ethel Tobach, Regina Williams, Val Woodward, Choichiro Yatani*

**A Different World: The Mississippi Valley Before 1492 (Tue/am).** Myths and legends; archaeoastronomy; lithic and ceramic analysis; European contact. *David Brose, John A. Eddy, Patricia Galloway, Jon Gibson, Jay Johnson, Rolf M. Sinclair*

#### Technical Session:

**How Archaeologists Know: Interdisciplinary Methods for Archaeological Problems (Mon/pm).** Bioanthropology; geochemistry; paleodiet; paleodemography; ceramic analysis; geoarchaeology. *Timothy Baugh, Rupert A. Housely, Heather Lechtman, William Lipe, Prudence M. Rice, Anna C. Roosevelt, Rebecca Storey, Nikolaas van Der Merwe, James Wiseman*

### Sociology; Political Science; Aging

**Teenage Pregnancy: Invention or Epidemic? (Fri/pm).** Racial differences; color and quality of life; private behavior; adolescent mothers. *Walter Allen, Arline T. Geronimus, James F. McCarthy, Constance A. Nathanson, Karen Johnson Pittman, Joseph E. Potter*

**Aging Processes: Phylogenetic and Cognitive Approaches (Sat/am).** Aging in plants and animals; genes; intelligence and cognition. *Lynn Hasher, Thomas E. Johnson, Roger McCarter, Larry D. Nooden, Denise Park, Arlan Richardson, Ilene C. Siegler, Sherry L. Willis*

**Perestroika and Scientific Freedom in the Soviet Union (Mon/am).** Reforms; East-West exchanges; insider's view. *Jane Cave, Maxim Frank-Kamenetskii, Linda L. Lubrano, Walter Reich, Gerson S. Sher*

**Democracy and Science in Latin America (Mon/pm).** Argentina; Brazil; Chile; Costa Rica; U.S. perspective. *Jorge Allende, Harry G. Barnes, Jr., Maria Conceição de Tavares, Eduardo L. Feller, Mónica Peralta Ramos, Marcel Roche, Jorge Sabato, Rodrigo Zeledón*

#### Technical Sessions:

**Intergenerational Relations and Family Support Networks (Sun/am).** Race and family; demography of aging; adoption; economy; child support. *Larry L. Bumpass, Rhoda H. Halpern, Christine Himes, Dennis P. Hogan, David I. Kertzer, Sara McLanahan, Judith Modell, Steven Ruggles*

**Reapportionment and Redistricting for the 1990s: The Politics and the Data (Sun/pm).** California; Southwest; forensic demography; minority groups. *Rodolfo O. de la Garza, José Garza, Alan Hesslop, Teresa A. Sullivan, Carol Uhler*

**Social Science and Public Policy (Tue/am).** South Africa; Poland; Argentina; Sweden; England. *Catherine M. Cunningham, Cora B. Marrett, Roberta Balstad Miller, Phyllis Moen, Włodzimierz Okrasa, Monica Peralta-Ramos*

### Economics and Industry; Communications

**"Informatization" of Soviet Society (Fri/pm).** Soviet conception; economy; computers; case studies; implications. *James R. Beniger, Gerald R. Faulhaber, Seymour E. Goodman, Florence M. Mason, Richard O. Mason, William K. McHenry, Edward E. Zajac*

**Scientists and the Current Crisis in Science Libraries (Sat/am).** Library budgets; journal costs; scientists' role and stake. *Henry H. Barschall, Karen A. Hunter, October R. Ivins, Robert K. Peet, A.F. Spilhaus, Jr.*

**American Competitiveness Since the Dollar's Fall: What Policies Are Needed? (Sun/am).** American economy; dangers of decline; policy options; foreign role. *Suzanne Berger, Robert T. Kudrle, Robert Z. Lawrence, Lawrence Mishel, William Niskanen, Lee Smith*

**Issues in the Distribution of Federal Research Support (Tue/am).** Current distribution; allocation policy; economic progress. *G. William Croker, John C. Crowley, Joseph G. Danek, Kenneth M. Pruitt, William A. Sibley, H. Stewart Van-Scoyoc*

**Technology and Trade Policy (Tue/pm).** International trade; Canada, European community; developing countries; theory. *Victor G. Bradley, John de la Mothe, Paul Dufour, Tom Ganiatsos, Paul Krugman, Steve Merrill, David C. Mowery, Vim Van Deelen*

#### Technical Sessions:

**Computer Networking, Education, and International Relations (Sat/pm).** Relief in Armenia; cross-cultural flow; Third World; glasnost; networking. *Jorge Allende, James Baring, Harry G. Barnes, Ren Breck, Graham Galer, Jerome Glenn, Paul Levinson, Stephen R. Ruth, Grigor Vaganian*

**Using Information Technologies to Improve Competitiveness of Service Sector Firms (Sun/pm).** Effectiveness; innovation; productivity; competitive advantage. *Walter S. Baer, Susan J. Devlin, Albert H. Rubinstein, David Van L. Taylor*

#### Workshops:

**University-Industry Ties: Blessings and Headaches (Mon/am).** Experience; new trends; university independence. *Ronald E. Cape, Henry Etzkowitz, Larry M. Gold, C. Kristina Gunsalus, Sheldon Krinsky, Deborah C. Runkle, Robert Stern*

**Communicating Science to the Public: Writing Strategies for Scientists and Engineers (Mon/pm).** Mass-media writers as group leaders. *Sharon Dunwoody, Carol L. Rogers*

### Arms Control

**Arms Control Verification: Progress and Challenges (Sat/am).** Technologies; U.S., Soviet perspectives; procedures, policies. *Sidney N. Graybeal, Oleg A. Grinevsky, Roger Hagen-gruber, Patricia A. McFate, Kent Stansberry, Roy D. Woodruff*

## Invitation to Exhibit

If your organization provides products or services that would be of interest to AAAS members, or if you would like to publicize your latest advances in science and technology before a worldwide audience, then you ought to consider exhibiting at the 1990 AAAS Annual Meeting.

Organizations that should exhibit include publishers; computer software and hardware companies; on-line information services; scientific associations; and government agencies. For complete details, call 202-326-6462.

**Lessons of the Iran-Iraq War: Mediation and Conflict Resolution (Sat/pm).** Role of UN; Geneva protocol; U.S. Navy; view from Iraq. *Eric H. Arnett, Peter Burleigh, Richard W. Cottam, Phebe Marr, Giandomenico Picco, Julian Perry Robinson, Janice Gross Stein*

**Chemical Weapons Proliferation or Chemical Disarmament? (Sun/am).** Technical and military considerations; Middle East; verification and negotiations. *Eric H. Arnett, Gordon Burck, Lewis A. Dunn, Mohamed Nabil Fahmy, Elisa D. Harris, Matthew S. Meselson, Robert Mikulak*

**Strategic Defense and the ABM Treaty in the 1990s (Sun/pm).** Strategic defense; technical, political, and legal implications; Soviet view. *Albert Carnesale, Ashton B. Carter, John M. Cornwall, Robert R. Everett, George L. Monahan, W. Thomas Wander*

**The Proliferation of Ballistic Missiles: Policy Options for the Future (Mon/am).** Overview; legislative perspective; supplier's dilemma; Middle East; Pacific. *Shai Feldman, Lise Hartman, Geoffrey Kemp, Andrew Mack, Janne E. Nolan, Richard Speier*

**Deep Cuts in European Forces: Can NATO and the Warsaw Pact Agree? (Mon/pm).** Nato, Warsaw Pact, and Western European viewpoints. *Jonathan Dean, J. Michael Edes, Sergei Karaganov, Cynthia Roberts*

#### Technical Session:

**Verification of Threshold Test Ban Limits (Fri/am).** Hydrodynamic and seismic yield measurements; statistics and compliance. *W.J. Hannon, Jr., Roger E. Hill, Frederick K. Lamb, William S. Leith, Milo D. Nordyke, Jack Rachlin, Paul G. Richards, David R. Russell*

## History and Philosophy of Science

**R. A. Fisher's Contributions to Science (Fri/am-pm).** Statistics; biometrics; genetics; evolution; population; medicine; statistical inference. *R. Clifton Bailey, J. H. Bennett, James F. Crow, Arthur P. Dempster, Shu Geng, Samuel Karlin, William B. Provine, C. Radhakrishna Rao, Teddy Seidenfeld*

**Seeing Ourselves in the Stars: Our Universe in Philosophical Perspective (Sat/am).** Cosmic evolution; life in the universe; cosmology; astronomy and philosophy. *Eric Chaisson, Gerald Feinberg, Timothy Ferris, Nancy Houk, Steven Kilston, Ernan McMullin, Frank Tipler*

**Rediscovering Alexandria: Science, Religion, and the Churches (Sun/am).** Types of interaction; ethics; professionals; physics and theology. *Ronald Cole-Turner, Langdon Gilkey, James B. Miller, Robert John Russell, Brent Waters*

**Young Einstein (Sun/pm).** Early years; his environment; philosophy; Mileva Einstein-Maric. *Robert S. Cohen, Caroline L. Herzenberg, Ruth H. Howes, Lewis R. Pyenson, John J. Stachel, Senta Troemel-Ploetz, Evan Harris Walker*

**Metaphors in Science: Their Role in Theory and Discovery (Mon/pm).** Metaphor creation process; image-sche-

matic basis of cognition; realism. *Sam Glucksberg, Carl R. Hausman, Mark L. Johnson, John R. Pierce, Albert Rothenberg*

#### Technical Sessions:

**The Rhetoric of Science (Fri/am).** Communication and cognitive science; genetics; economics. *Steve Fuller, Henry F. Howe, John Lyne, Edward Manier, Donald N. McCloskey*

**Issues of Objectivity and Commitment in Researching Controversial Religious Groups (Sat/pm).** Problem of objectivity; reflexivity and cults; Liberation Theology; feminist perspective; conscience. *Felicitas D. Goodman, Philip E. Hammond, Janet L. Jacobs, Otto Maduro, James T. Richardson, Thomas L. Robbins, Roland Robertson*

**New Directions in the Philosophy of Mathematics (Tue/pm).** *Nicolas D. Goodman, Reuben Hersh, Martin H. Krieger, Michael D. Resnik, Gian-Carlo Rota, Thomas Tymoczko, Hao Wang*

## Education, General

**What's Going on in the World of Science Museums? (Mon/pm).** Perspectives from U.S. and abroad. *Patricia S. Curlin, Michael M. Gore, Richard L. Gregory, Leo Tan Wee Hin, Roger Lesgards, Hannu I. Miettinen, Stephen Pizzey, Inga-Britta Sandqvist, David A. Ucko*

**Assessing Scientific Literacy (Sun/am).** National assessment; exercises and critiques. *Andrew Ahlgren, Charles W. Anderson, Joan Baron, Audrey B. Champagne, Walt MacDonald, F. James Rutherford*

#### Technical Sessions:

**Reflections on Science Encounters 1990: A Plan of Action (Thur/am).** Communities; industry; new materials; models. *Jr. Academy. R. Dean Decker*

**Science Education in Latin America: Challenges and Opportunities (Sat/am).** Puerto Rico; Argentina; Brazil; Columbia; Caribbean. *José Miguel Abraham, Marjorie Gardner, Manuel Gomez, Winston K. King, Myriam Krasilchik, Victor J. Mayer*

**Revitalizing Science and Engineering Education Through New Uses of Technology (Sat/pm).** Symbolic manipulation; calculators; microcomputers; simulation; intelligent tutoring. *Sarah B. Berenson, Bruce A. Black, Ann C. Howe, Kazuhiko Kawamura, E. Rex Kruger, Lee V. Stiff, Burton E. Voss*

**The Value to Scientific Literacy of Science Trade Books for Children (Mon/am).** Integrating into teaching; quality of books; writing. *Marilyn Binkley, Jennifer M. Brown, Audrey B. Champagne, Kathleen S. Johnston, Wendy E. Saul*

**Scientist-Teacher Partnerships in Middle School Science and Technology Education (Tue/am).** Bell-Atlantic - AAAS Institute model program; communications/information technology curriculum. *Gerald Kulm*

**Science and Science Fiction (Tue/pm).** Tool for teaching; computers. *Wayne R. Coskrey, Kathleen Y. Edgeworth, James R. Madden, Jessica P. Scott, Valerie F. Smith, Jack H. Stocker*

**The Development of Pre-adult Attitudes Toward Science and Mathematics in Japan and the United States (Fri/am).** Early orientation; problem-solving skills; attitudes. *Jerry P. Becker, Robert Leestma, Floyd Mattheis, Jon D. Miller, Masao Miyake, Shigekazu Takemura, K. Michael Troost*

#### Workshop:

**Scientific Writing: Recommendations and Resources (Sun/pm).** Organization; style; resources; editor's advice. *Gillian Fansler Brown, Robert A. Day, Barbara J. Gastel, Daniel E. Koshland, Jr.*

## Education, Curricula

**Approaches to Developing New Curricula for Calculus, Physics, and Chemistry (Sat/pm).** Specialists' perspectives. *Jerone A. Goldstein, Dudley R. Herschbach, Saul Krasner, John S. Rigden*

**Register now! Use forms on page 1328.**

**Innovations in Undergraduate Science Curriculum** (Sun/pm). Engineering; physics; computer science. *Merle Bruno, Edward Buchwald, Audrey B. Champagne, Charlene D'Avanzo, Gerald L. Engel, Alan Lightman, John B. Reid, John Truxal, Robert F. Watson*

### Technical Sessions:

**The Role of the Geological Sciences in Science Education** (Fri/am). Nonscience majors; science literacy. *Walter Alvarez, Cesare Emiliani, William W. Hay, Victor J. Mayer, Frank M. Richter, E-An Zen*

**Fifteen Years of Marine Education: Progress and Prognosis** (Fri/pm). Science literacy; oceanography; television; aquaria. *Valerie Chase, Rosanne W. Fortner, Susan E. Humphris, Frank Ireton, Gerry Madrazo, Victor J. Mayer, Arthur J. West II*

**Reform of Scope, Sequence, and Coordination of Secondary School Science** (Sat/am). Reform of curricula; models; documentation; assessment. *Bill G. Aldridge, Bonnie Brunkhorst, Linda Crow, Marily DeWall, George E. Miller, LaMoine Motz, Clifford E. Swartz, Iris R. Weiss*

**Beyond the Textbook: New Models for Learning Biology** (Sun/am). Simulations; diagrams; semantic networks; hypertext. *Kathleen M. Fisher, Ann Hildebrand, James Stewart, Joanne Striley*

### Workshop:

**Quantitative Literacy: Probability and Statistics in the Curriculum** (Tue/am). Data analysis; simulation; sampling; teaching. *Gail Burrill, Mrudulla Gnanadesikan, Patrick W. Hopfensperger, Judith Rich O'Fallon*

### Global Change,

continued from page 1323

### Workshop:

**Environmental Risk Reporting: The Science and the Coverage** (Thur/am-pm). Chemical risks; experts; public; community; mass media. *Victor Cohn, Vincent T. Covello, James T. Detjen, Sharon Dunwoody, Sharon M. Friedman, Bernard D. Goldstein, Carol L. Rogers, Cristine Russell, Peter M. Sandman, Paul Slovic, Morris A. (Bud) Ward*

### Natural Sciences and Technology, continued from page 1318

programs; distributed computation; interactive proofs; privacy. *Manuel Blum, Shafi Goldwasser, Silvio Micali, Gian-Carlo Rota*

### Popular Science

**The Spice of Life: Science, Culture, and Cajun Cooking** (Fri/am). Cajun ethnohistory; cultural ingredients; music; blackened redfish; spicy foods and the stomach. *Mathe Allain, Barry Jean Ancelet, Carl Brasseaux, David Y. Graham, Jill H. Pace, Paul Prudhomme, Molly G. Schuchat, Albert H. Teich*

**Science for the Naked Eye; or, The Physics of Everyday Experience, XVII** (Sat/am-pm). Human communications; computer graphics; quantum mechanics; computer music; racing cars. *Donna Cox, Edward T. Hall, Max V. Mathews, Russel J. Reiter, Marlan O. Scully, Rolf M. Sinclair, Caroline Sumners*

**On the Frontiers: Creatures That Fly — Birds, Bats, Bees, and Bugs** (Sun/am-pm). Homing pigeons; flocking and chaos; avian flight; bat ecology and sonar; moths; African bees. *William E. Conner, Kenneth Dial, Frank H. Heppner, Saul Krasner, Thomas H. Kunz, Anne M. Schneiderman, James A. Simmons, Orley Taylor, Charles Walcott*

**Chemistry Is Fun!** (Mon/am). Fun with liquids and gases. *Karen Bauer, Paul C. Beisenherz, Steven Blume, Connie Tilakos*

**Applications of High Technology to Future Automobiles and Highway Systems** (Mon/pm). Intelligent vehicles; energy usage reduction; satellite navigation; traffic management. *Serge Gratch, David L. Harrington, Mounir M. Kamal, Lyle G. Saxton, Gerald K. Slocum, John R. Wallace*

## General Meeting Information

**Location:** Sessions will be in the New Orleans Hilton and Towers and across the street in the Rivergate Exhibition Center, which will also house the AAAS Science & Technology Exhibition. Some functions will be at the Holiday Inn Crowne Plaza, which is one block away.

**Housing:** Reduced-rate guest rooms are available at the Hilton and Holiday Inn if you use the form provided and return it to the appropriate hotel by 13 January.

**Registration:** Reduced-rate registration for the Meeting is available if you use the form provided and return it to the address shown by 12 January. Your registration badge and a voucher for the Meeting Program will be mailed by mid-January. The voucher can be redeemed at the Meeting registration desk in the Convention Lobby of the Hilton: on Thursday (15 Feb.), noon – 7 pm; Friday – Monday (16 – 19 Feb.), 8 am – 6 pm; or Tuesday (20 Feb.), 8 am – noon. Refunds for advance registration cancellations, if requested by letter, telegram, or FAX (202/289-4021) and received by AAAS no later than 6 February, will be issued after 21 February.

**Transportation:** Reduced-rate air fares are available on United

and Delta; see notice elsewhere in this section. Airport vans leave from the airlines' baggage claim areas every 15-20 minutes and go to the Hilton and Holiday Inn (\$7 one way). Taxis take about 30 minutes to the hotels (flat rate \$18). Within New Orleans, street cars and buses, including a special riverfront street car between the Hilton and the French Quarter, are available at 60¢ (exact change). Parking is available at the Hilton and Holiday Inn for about \$5/day (no in/out privileges); valet parking with in/out privileges is available at a higher fee.

**Other Services:** Child care by a licensed agency is available to registered guests at each hotel; 24-hour advance notice is required. Messages may be left at the Message Center in the registration area (ask for the AAAS Message Center at 504/561-0500). **Employment information**, either "position available" or "position wanted," may be posted on designated bulletin boards. **A resource room for the disabled** will be available in the Hilton (Prince of Wales, 2nd floor); if you require special services due to a disability, list your needs on your hotel reservation form and on your advance meeting registration form, or contact the AAAS Project on Science, Technology, and Disability (202/326-6667; TTY available).