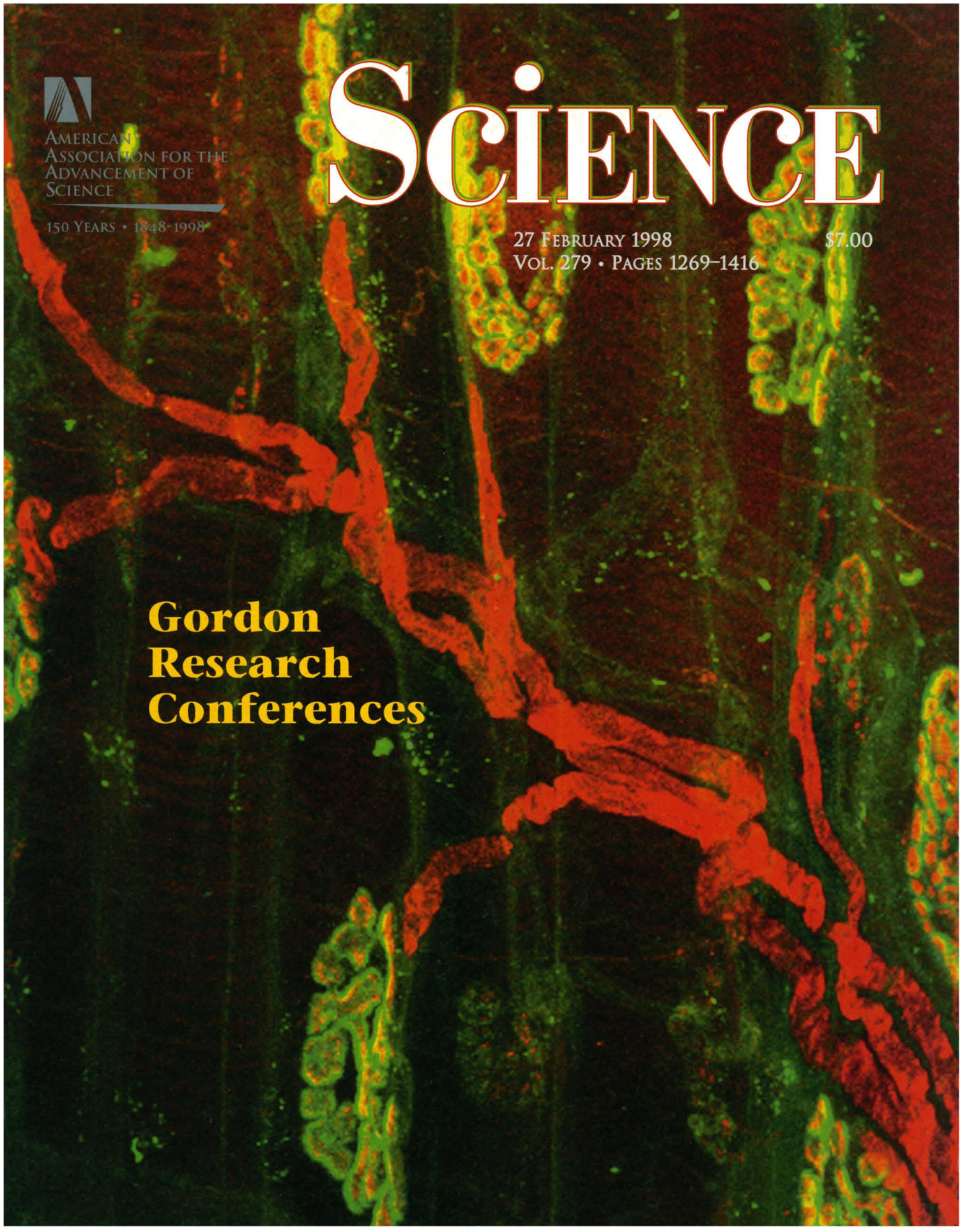

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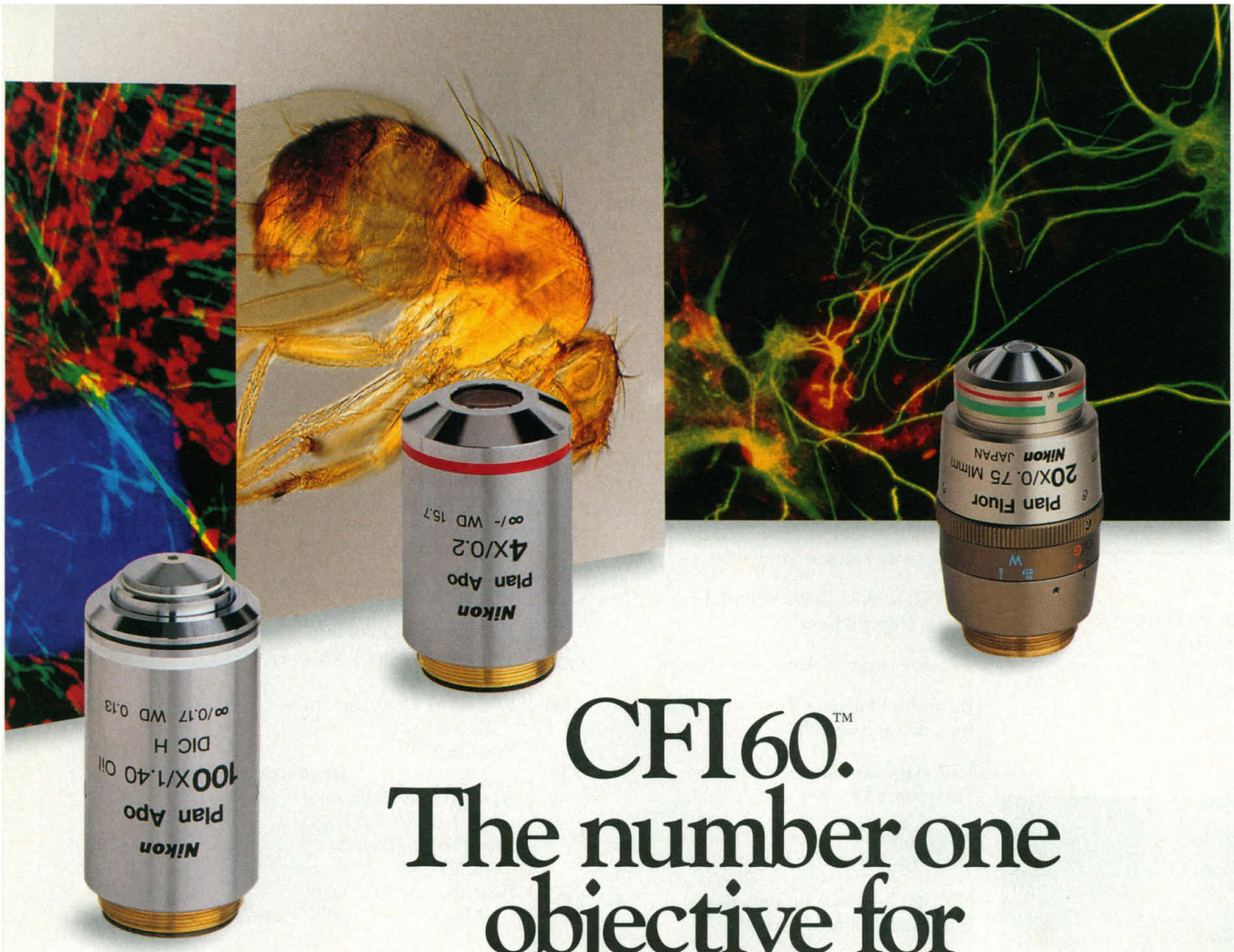

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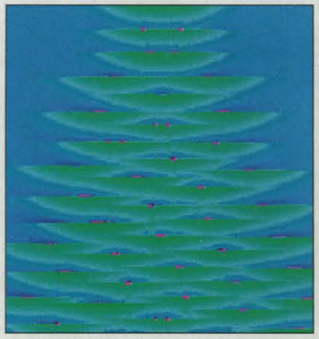
What next from Microsoft?



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NEWS

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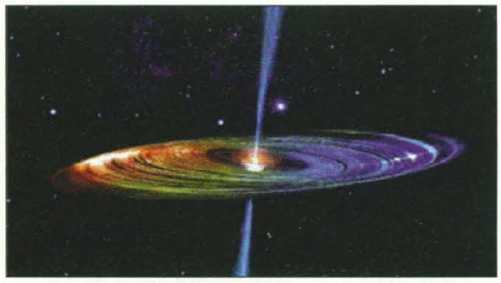
COVER

The Gordon Research Conference on Synaptic Transmission meets 2 to 7 August 1998. The cover shows motor synapses in a thin muscle of the garter snake. Postsynaptic membranes of the muscle (green) oppose endocytic sites within boutons, which appear red after brief nerve stimulation in the presence of the activity-dependent probe sulforhodamine 101. The schedule of summer and international Gordon Conferences for 1998 appears on pages 1374–1386. [Image: H. Teng, J. Cole, R. Wilkinson, Washington University School of Medicine]

REPORTS



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Looking for black holes

Indicates accompanying feature

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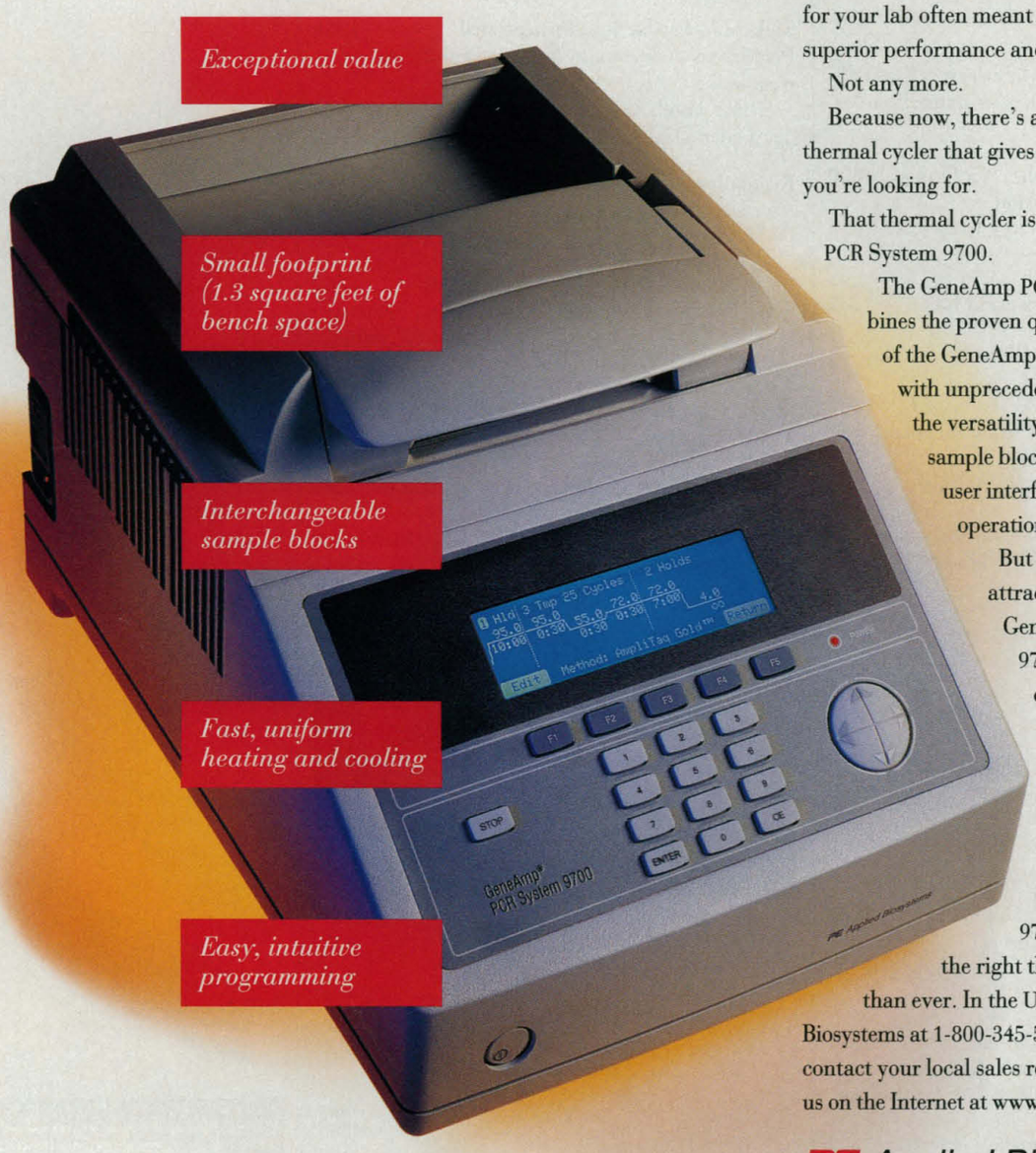

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THIS WEEK IN SCIENCE

edited by PHIL SZUROMI

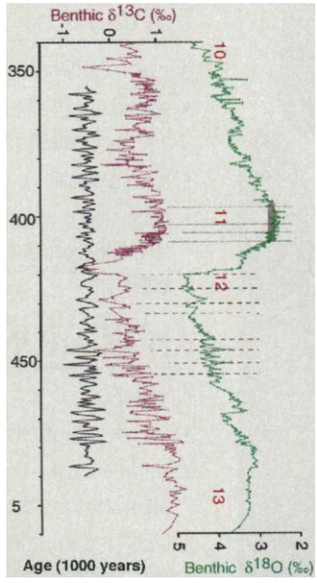
Recovering from disaster

After the Cretaceous-Tertiary extinction of the dinosaurs and many other species, marine and terrestrial communities recovered rapidly on a global scale. Jablonski (p. 1327; see the commentary by Erwin, p. 1324) examined the evolutionary diversity of the marine molluscan faunas just before and after the extinction event in four provinces, the Gulf Coast of North America, northern Europe, northern Africa, and Pakistan–northern India. He found that the mollusks rapidly recovered in North America compared to the other three provinces. He then hypothesizes that this extraordinary recovery is directly related to the Gulf Coast region being the closest to the purported asteroid impact into the Yucatan Peninsula at Chicxulub that caused the mass extinction. Not only do these results support the Chicxulub impact event, but they also suggest that the relation of biodiversity to biogeography can be complicated by random events.

■

Abrupt shifts whatever the climate

Recent detailed studies of ice cores and deep sea cores has shown that abrupt changes in temperature and climate occurred every few thousand years or so during the last 50,000 to 100,000 years. Because the patterns persist through the most recent deglaciation and into the Holocene, the climatic patterns seem to be independent of the presence of large ice sheets. Whether these climatic patterns characterized earlier parts of the Pleistocene or developed just during the last glaciation has not been clear. Oppo *et al.* (p. 1335; see the news story by Kerr, p. 1304) show that such millennial-scale climate cycles are recorded in a core from the North Atlantic dating from 300,000 to 540,000 years ago and that the cycles affected sea surface temperature and deep ocean circulation. This record spans an extreme glaciation and a warm interglacial. Thus, millennial-scale climate variability persisted during the past 500,000 years at least, regardless of the global climate, and seems to have involved ocean circulation.



■

A perturbed budget

Nitrous oxide (N_2O) is one of the most important greenhouse gases. Natural and anthropogenic sources contribute to its atmospheric budget, and identifying their contributions to the global N_2O concentrations is necessary if we are to understand this century's increase in N_2O concentrations and attempt to control the emissions. Chemical models are used to infer anthropogenic and natural sources, because N_2O emissions are difficult to quantify in observations. Prather (p. 1339) shows how the photochemical coupling between N_2O and stratospheric ozone can be used to identify the atmospheric perturbation due to anthropogenic N_2O sources in a one-dimensional (vertical diffusion) model that couples the stratosphere, troposphere, and the ocean boundary layer. This perturbation decays 10 to 15 percent more rapidly than the overall N_2O atmospheric lifetime. Such a faster decay may affect the inference of anthropogenic sources from chemical models.

■

Night light

Circadian rhythms maintain vertebrate day-night cycles and are reflected by a large nocturnal increase in circulating levels of melatonin. Gastel *et al.* (p. 1358) now show that brief exposure to light in the middle of the night causes a dramatic reduction in the activity of one of the enzymes needed to produce melatonin, pineal serotonin *N*-acetyltransferase. This regulation occurs through proteasomal degradation, which destroy the enzyme very rapidly.

Ice core isotopes and geomagnetism

The geomagnetic field shields the Earth from cosmic rays. One detailed record of the past variation of Earth's geomagnetic field may thus be provided by the abundance of cosmogenic isotopes in ice cores. Baumgartner *et al.* (p. 1330) show that the chlorine-36 record from the GRIP ice core in Greenland, which extends back to about 100,000 years ago, fits well with production rates inferred from a reconstruction of Earth magnetic field based on paleomagnetic data from marine sediments. The data support the inference that the magnetic field was particularly weak about 38,000 years ago.

■

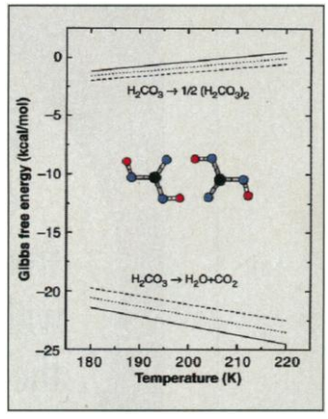
Cool tropics

During the last glacial maximum, about 21,000 years before present, temperatures across the globe were lower than they are now, but the exact magnitude of the cooling in the tropics is still subject to debate, especially over the tropical oceans. Climate models have in the past generally only shown a moderate cooling of the tropical sea surface temperatures. Bush and Philander (p. 1341) now show that with a more realistic coupled atmosphere-ocean model that includes important feedbacks between the oceans and the atmosphere, a significant cooling is obtained for the last glacial maximum. This analysis lends support to the interpretation of some paleoclimate data that have indicated sea surface temperature coolings of similar magnitude.

■

Carbonic acid chemistry

Carbonic acid, H_2CO_3, is a key intermediate species in many reactions involving carbon dioxide, water, and bicarbonate and carbonate ions. In most astrophysical and planetary settings, it has been thought to decay too rapidly to carbon dioxide and water to be present in sufficient amounts for detection. Hage *et al.* (p. 1332) report results of laboratory experiments and thermodynamic calculations that imply that carbonic acid can sublimate and recondense without decom-



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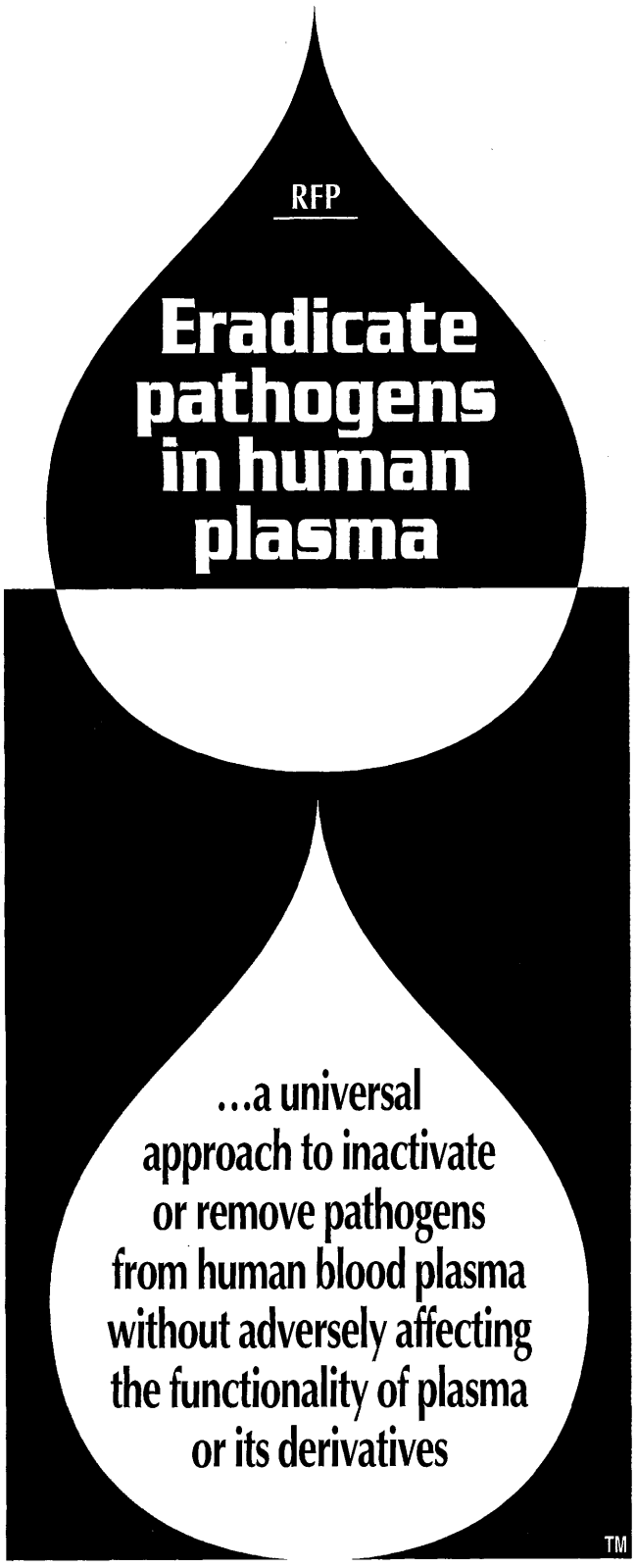

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(Continued from page 1277)

position. Carbonic acid may thus be present in and account for some of the spectral features that have been observed from comets, Mars' ice caps, Earth's upper atmosphere, and the icy planets. In some of these settings, high-energy irradiation of water and carbon dioxide ices may lead directly to the formation of amorphous carbonic acid.

■

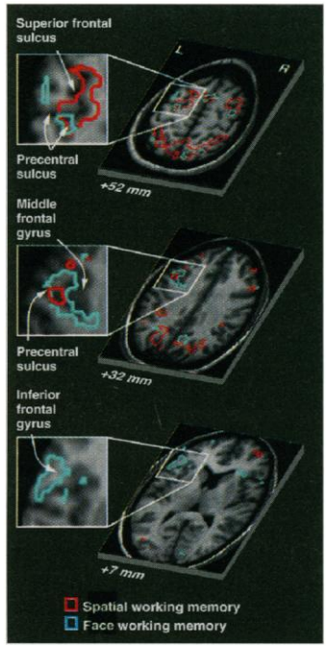
Molecular mimicry and autoimmune disease

A major cause of human blindness in the United States is herpes stromal keratitis, which is thought to have autoimmune components. Zhao *et al.* (p. 1344; see the news story by Dickman, p. 1305) have shown in a mouse model that the T cells that mediate destruction of the corneal tissue also recognize an epitope of the coat protein of herpes simplex virus–type 1 (HSV-1). When viruses were constructed that did not express this epitope, the virus could no longer induce herpes stromal keratitis. Thus, investigations into a mouse model of blindness led to insights into the pathogenesis of the disease and provide evidence that molecular mimicry is important in a virally induced autoimmune disease.

■

A place for working memory

Although there is general agreement on the existence and location of a monkey brain area that mediates working memory—the storage of information for immediate use—the situation in humans has been debated. Through the use of functional imaging, Courtney *et al.* (p. 1347) provide evidence for the existence of such a region and for its unexpected location. An area in the superior frontal sulcus was found to be specialized for working



memory of spatial locations, as compared to working memory of faces, and to be distinct from a neighboring brain area (the frontal eye field) that subserves eye movements. Although the relation of the human working memory domain to the frontal eye field is similar to that in monkeys, this domain is located more superior and posterior with respect to the whole brain than the working memory domain in monkeys.

■

Modeling brain waves

The connectivity of excitatory neurons can, in response to a discrete stimulus, yield waves of depolarization that travel quickly across a network of cells. Recent results from electrophysiological studies of brain slices indicate that inhibitory neurons can trigger such synchronous activity as well. Rinzel *et al.* (p. 1351) construct a model of such a network and reproduce the wave-like recruitment of neurons. They go on to explore the influence of cellular properties, such as the reversal potential, on the propagation speed, frequency, and spatial patterning.

A time for flowers

Plants make the transition from vegetative growth to production of flowers in response to developmental cues and seasonal changes in the length of the day. Guo *et al.* (p. 1360; see the commentary by Suárez-López, p. 1323) have found that blue- and red-light photoreceptors work together to regulate the time of flowering. In *Arabidopsis*, the *CRY2* gene, which encodes a blue-light photoreceptor, is the same gene as affected in the late-flowering mutant *fha*. The photoreceptors together work through regulation of the gene *CONSTANS* to determine the shift to the reproductive phase.

■

Synaptic specialization

Can the same nerve form different types of synapses with different targets? At the anatomical level, the answer is a clear yes. Maccaferri *et al.* (p. 1368) now show that, in the hippocampus mossy fiber, synapses with pyramidal cells have distinct biochemical and electrophysiological characteristics from the synapses formed with interneurons. Thus targets of the same neuron will respond differentially to the same stimulus, which will then influence the computational properties of the hippocampus.

■

Inside the auxin pathways

Auxin, a plant hormone, is vital to the regulation of plant growth and development. Several genes are important in the response to auxin, and biochemical studies have identified certain nuclear proteins that change their expression with auxin treatment. However, linkage between these two experimental approaches has been elusive. Rouse *et al.* (p. 1371) have now cloned one of the genes that regulates the auxin response and show that the encoded protein resembles those that are induced in response to auxin. The gene, *IAA17/AXR3*, thus forms a link in the early parts of the auxin signaling pathway.

■

Critical *Candida* gene

Infection with the fungus *Candida albicans* can be fatal in premature infants, diabetics, surgical patients, and immunocompromised individuals. The ability of *C. albicans* to adhere to cells and its ability to change to a filamentous form are linked to its pathogenicity. Gale *et al.* (p. 1355) deter-

mined that one gene, *INT1*, is necessary for both processes and the ability of *C. albicans* to kill mice. Disruption of the activity of this gene may be important in the design of therapeutics.

■

Src and long-term potentiation

The role of tyrosine phosphorylation in the induction of the cellular correlate of learning, long-term potentiation or LTP, has been established for some time. Lu *et al.* (p. 1363) now clarify which kinase is likely to be responsible, and identify the nonreceptor protein tyrosine kinase, Src, as necessary and sufficient for the induction of hippocampal LTP.

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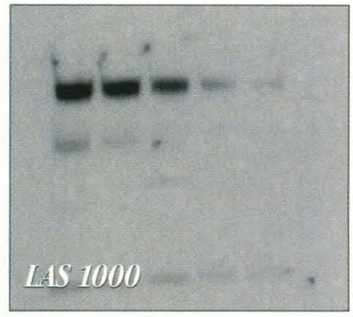

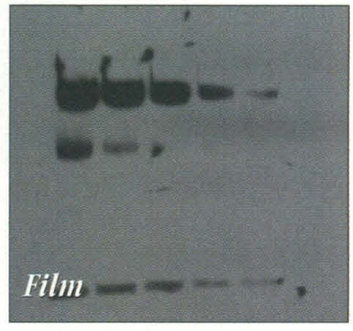

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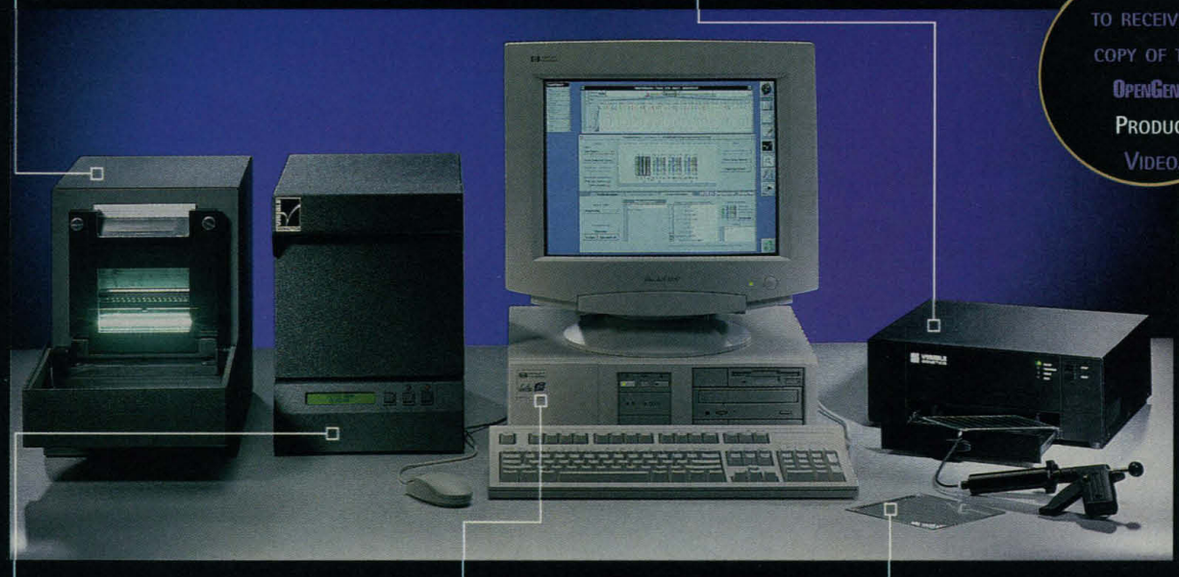

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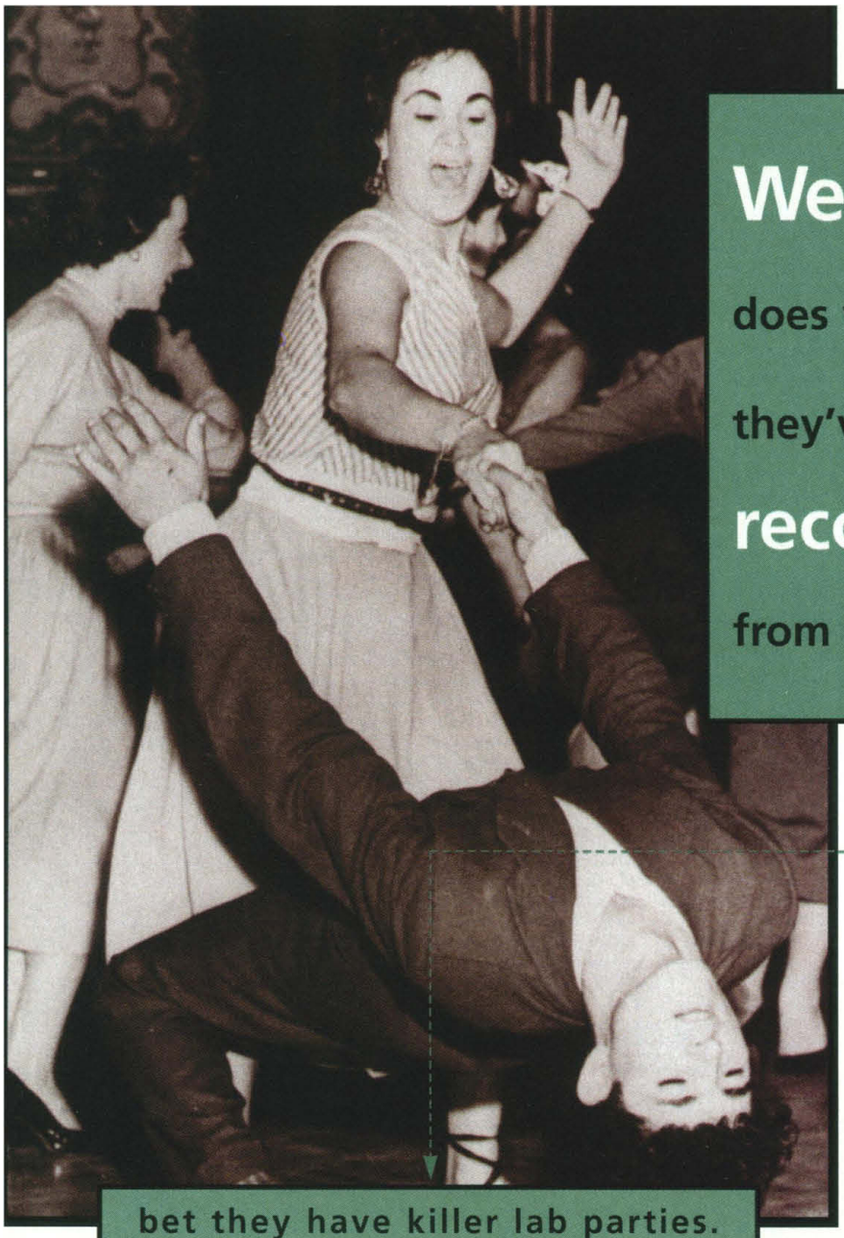

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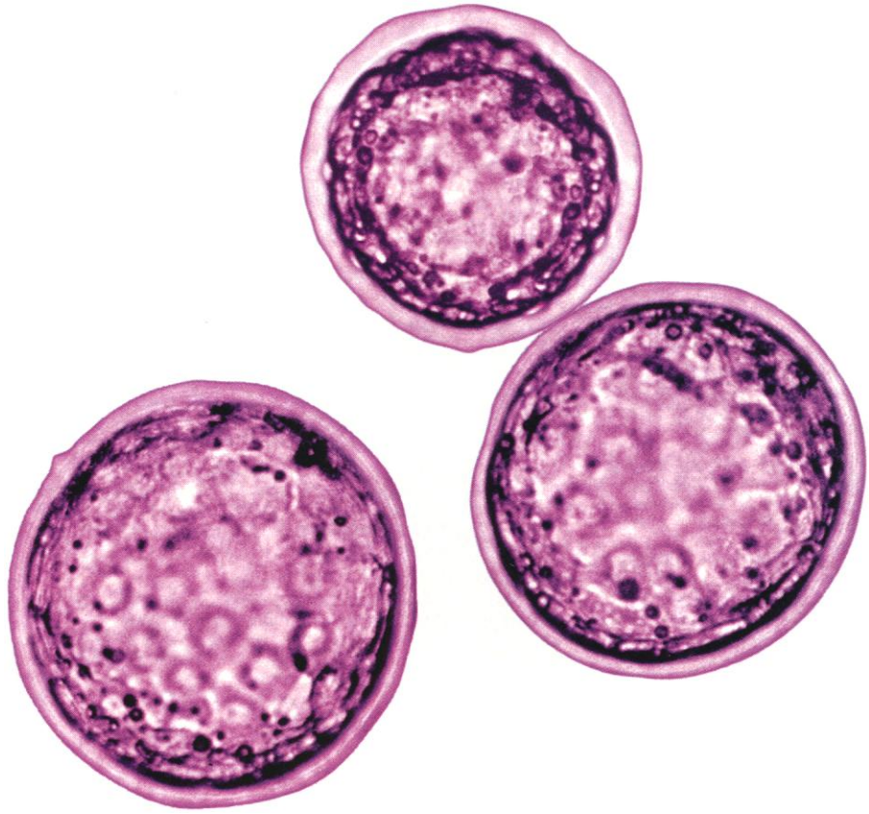

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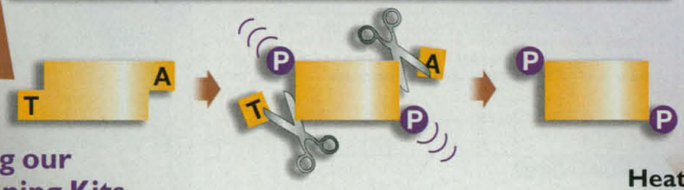

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1. Brownstein, J.M., *et al.* (1996) *BioTechniques* **20**, 1004–1010.
2. Magnuson, V.L., *et al.* (1996) *BioTechniques* **21**, 700–709.
3. Novy, R.E., Yaeger, K.W., and Kolb, K.M. (1996) *In**Nova**tions* **6**, 7–11.

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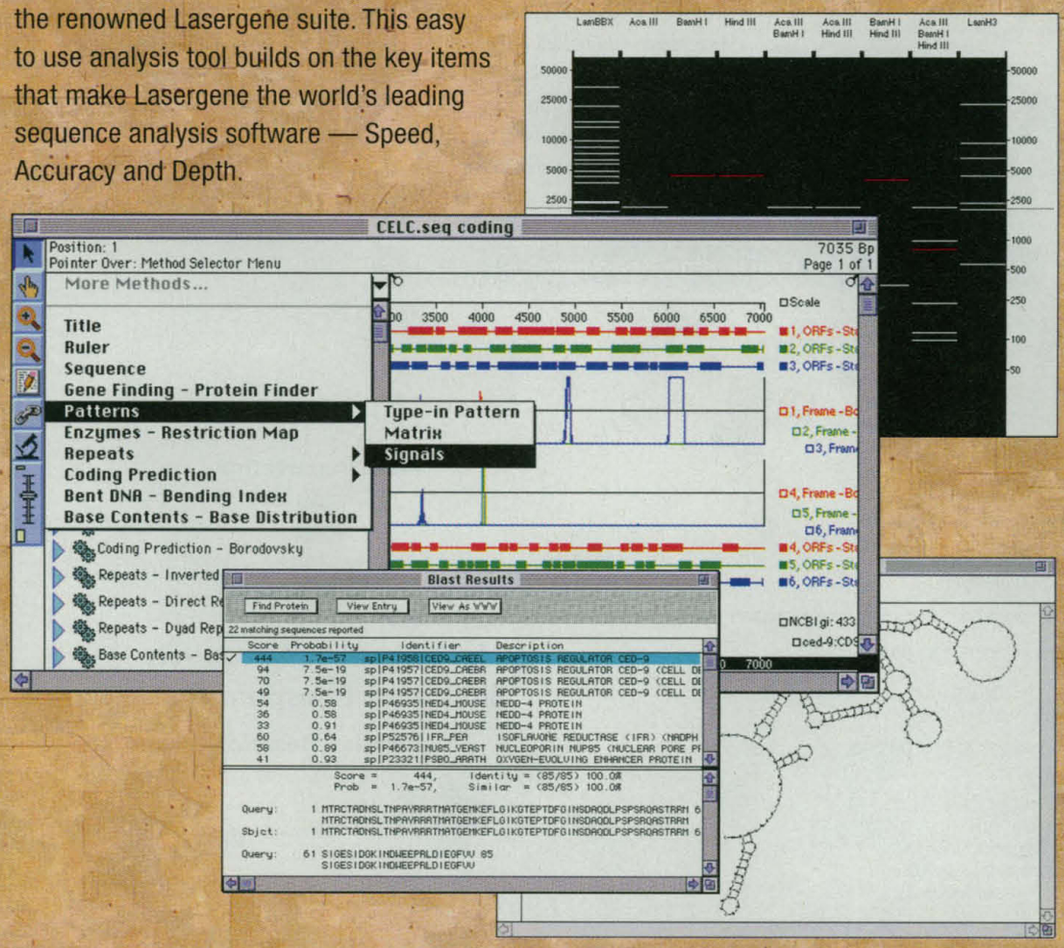

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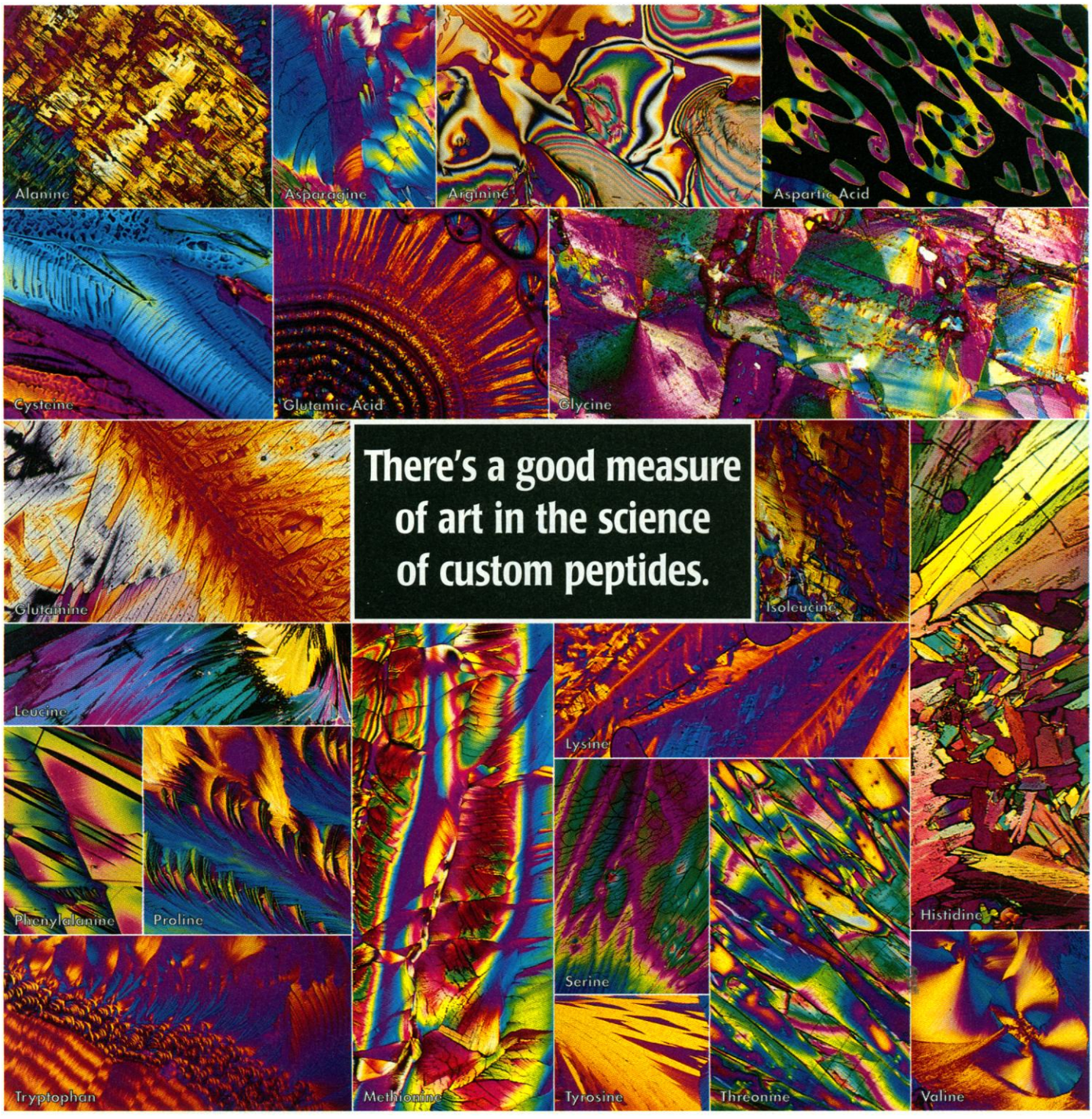

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- Electric Field Sensory Perception
- Magnetic Field Sensory Perception
- Electric and Magnetic Fields in Self Organization - I, II
- Diagnosis and Therapy at the Systems Level - I, II
- Electric Fields in Membrane Transport - I, II, III

BIOENGINEERING & ORTHOPEDIC SCIENCE
PROCTOR ACADEMY
ANDOVER, NH
JULY 26 - 31, 1998
Linda Sandell, Chair
Richard Coutts, Vice-Chair

- Formation Of The Mammalian Skeleton
- The Skeleton And Cancer
- Growth Of The Skeleton
- A Vision Of The Future From New Investigators
- Soft Tissues: Muscle, Tendon And Ligament
- Repairing Bones
- Cartilage Degeneration And Repair
- Total Joint Replacement And Implants

BIOLOGICAL REGULATORY MECHANISMS
HOLDERNESS SCHOOL
PLYMOUTH, NH
JULY 26 - 31, 1998
Cynthia Kenyon & Jeff Roberts, Co-Chairs
David Smith & Francine Perler, Co-Vice-Chairs

- Molecular Mechanisms Of Behavior
- The Cell Cycle and Its Regulation
- Motors and Protein Machines
- Chromosome Structure and Gene Expression
- Regulation Of Protein Synthesis, Folding and Function
- Regulating The Initiation Of DNA Replication
- Biological Clocks and Aging
- Creative Genomics and The Future
- Pathogens, Opportunists and Strange Creatures

BIOMINERALIZATION
NEW ENGLAND COLLEGE
HENNIKER, NH
AUG. 2 - 7, 1998
Irving Shapiro, Chair
Malcolm Snead, Vice-Chair

- Control Of Biomineralization At Inorganic-Organic Interfaces (i) Invertebrate (ii) Vertebrate Tissues
- Control Of Biomineralization At The Cell-Matrix Interface (i) Dental Tissues (ii) Bone (iii) Invertebrate Tissues
- Cell And Matrix Regulation Of Dystrophic Mineralization
- New Strategies For Mapping Biomineralization
- Improving On Nature: (i) Engineering New Implant Materials (ii) Biomimetics

BIOORGANIC CHEMISTRY
PROCTOR ACADEMY
ANDOVER, NH
JUNE 14 - 19, 1998
Donald Hilvert & Kevin Judice, Co-Chairs
Steven Rokita & Thomas von Geldern, Co-Vice-Chairs

- Nuclear Receptors
- Catalysis
- Molecular Recognition
- Protein Design
- Glycobiology
- Membrane Biology / Fusion
- Combinatorial Biology
- Bioinformatics
- Signal Transduction

BIOPOLYMERS
SALVE REGINA UNIVERSITY
NEWPORT, RI
JUNE 14 - 19, 1998
Michael Brenowitz & Stephen Harvey, Co-Chairs

- Proteins That Bind Nucleic Acids
- Macromolecular Folding, Proteins
- Macromolecular Folding, RNA
- Water And Macromolecular Interactions
- Single Molecule Measurements
- Nucleic Acid Structure And Ligand Binding
- Modeling Macromolecules
- Multi-Component Protein-Nucleic Acid Complexes
- Keynote Address: Energetics of Folding RNA Tertiary Structures

CANCER
SALVE REGINA UNIVERSITY
NEWPORT, RI
AUG. 2 - 7, 1998
Saraswati Sukumar, Chair
Tyler Jacks, Vice-Chair

- Cell Cycle Checkpoints And Death Signals
- Signalling Pathways
- Cancer Susceptibility Genes
- *In Vivo* Model Systems
- DNA Methylation And Loss Of Imprinting
- Telomeres And Telomerase
- Cellular Crosstalk And Cell-Matrix Interactions
- Targeting Angiogenic Pathways
- Cancer Vaccines And Gene Therapy
- Translational Applications Of Molecular Probes
- Cancer Molecular Biology: Achievements Of The Past And The Vision Ahead

CARDIAC REGULATORY MECHANISMS
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JULY 19 - 24, 1998
Eduardo Marban, Chair
Donald Bers, Vice-Chair

- Receptors / Signal Transduction
- Ion Channels I, II
- Control Of Cardiac Excitability And Contractility By Energy Metabolism
- Cell-Cell Communication
- Calcium Cycling Proteins
- Excitation-Contraction Coupling
- Links Between Calcium And Force Generation
- Controversies In Excitation-Contraction Coupling
- Pathophysiology Of Hypertrophy And Heart Failure

CATALYSIS
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JUNE 21 - 26, 1998
Raymond Gorte, Chair
Wm. Curtis Conner, Vice-Chair

- Oxidation Reactions
- Acid-Base Catalysis
- Automotive Issues
- Polymer Catalysis
- Fine Chemicals
- Other
- Young Faculty Forum

CELL BIOLOGY OF THE NEURON
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JUNE 14 - 19, 1998
Susan Amara & Reinhard Jahn, Co-Chairs
Thomas Martin & Peter Seeburg, Co-Vice-Chairs

- Exocytosis
- Physiology Of Neurotransmitter Release
- Synaptic And Developmental Plasticity
- Endocytosis And Membrane Dynamics
- Receptors And Transporters
- Channel Structure And Function
- Molecular Dynamics In Axons And Dendrites
- Protein Clustering And Anchoring Domains In Signal Transduction
- Sensory Systems

CELLULAR & MOLECULAR MYCOLOGY
HOLDERNESS SCHOOL
PLYMOUTH, NH
JULY 19 - 24, 1998
Jay Dunlap & Gillian Turgeon, Co-Chairs
Beth Didomenico & Tom Adams, Co-Vice-Chairs

- Signal Transduction
- Morphogenesis
- Genomics
- Evolution
- Plant Pathogenesis
- Animal Pathogenesis
- Sexual Development
- Regulation
- Mycology, Molecules And Money

CERAMICS, SOLID STATE STUDIES IN
KIMBALL UNION ACADEMY
MERIDEN, NH
AUG. 2 - 7, 1998
Gary Messing, Chair
Dawn Bonnell & W. Craig Carter, Co-Vice-Chairs

- How Well Do Microstructure-Property Relations Guide Tailoring Of Ceramics?
- New Perspectives On Processing-Microstructure Relations
- Structure Development By Manipulation Of Colloid Surfaces
- Thin Films - Phase, Orientation And Microstructure Regulation
- Property Control By Tailoring Active Interfaces

(cont. on next page)

- Structurally Superior Ceramics Via Microstructure Control
- Novel Approaches To Tailored Ceramics
- Complex Ceramic Structures

CHEMICAL SENSES: TASTE & SMELL
SALVE REGINA UNIVERSITY
NEWPORT, RI
JULY 12 - 17, 1998
John Kauer & Marion Frank, Co-Chairs

- Overall Title: Structure/Function Relationships in Taste and Smell
- Beyond cAMP vs. InsP3: Transduction Diversity in Olfaction
- Sweet Taste - Reconciling Genetics and Receptor Models
- Bitter Taste: The Role of the Glossopharyngeal Nerve
- Expression Systems in Olfactory - What Do We expect?
- The Beginning or End - What is the Role of Maps?
- Transduction of Developmental Signals
- Inhibitory Systems in Taste Processing: What is the Role in Coding?
- Specialist vs. Generalist Systems in Vertebrates vs. Invertebrates

CHEMICAL SENSORS & INTERFACIAL DESIGN
NEW ENGLAND COLLEGE
HENNIKER, NH
JULY 12 - 17, 1998
Jiri (Art) Janata, Chair
Thomas Mallouk, Vice-Chair

- Sensing Systems For Assays
- New Materials
- DNA And Chemical Sensors
- Mechanisms And Interactions In Sensing Layers
- Industrial Sensing Systems
- Solid State Gas Sensors
- Design, Fabrication And Packaging Of Sensors And Arrays
- Virtual Sensors And Conversion Of Data To Information

CHEMOTACTIC CYTOKINES
NEW ENGLAND COLLEGE
HENNIKER, NH
JUNE 21 - 26, 1998
Thomas Schall, Chair
Steve Kunkel, Vice-Chair

- The Chemokine System In Scope And Scale: Molecular Diversity And Functional Understanding.
- The Chemokine System In Hematopoietic Development, Leukocyte Trafficking And Regulation - I, II
- Chemokines In Dendritic Cell Biology, Transplantation, And Immunotherapy
- Chemokines In The Biology Of The Nervous Systems
- Chemokines And Infectious Disease (I): Recent Advances In HIV/SIV Research
- Chemokines And Infectious Disease (II): Herpesvirus, Pox Virus And Bacterial Pathogenesis
- Advances In Genetic And Animal Models Of Chemokine Function In Disease And Development
- Technology Advances In Chemokine Function Assessment And Therapeutic Developments In Chemokine Biology

CHEMOTHERAPY OF EXPERIMENTAL & CLINICAL CANCER
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JULY 26 - 31, 1998
Patrick O'Connor, Chair
Neil Gibson, Vice-Chair

- Functional Genomics
- Computer Workshop I: Molecular Biology Databases
- Combinatorial Chemistry
- The p53 Tumor Suppressor Pathway
- Computer Workshop II: Molecular Pharmacology Databases
- The Ras Oncogene and Protein Farnesylation
- Signal Transduction
- NIH Grant Workshop
- Clinical Trials
- Cell Cycle Control
- Apoptosis

CHROMATIN STRUCTURE & FUNCTION
TILTON SCHOOL
TILTON, NH
JULY 12 - 17, 1998
Carl Wu, Chair
Susan Gasser, Vice-Chair

- Histone Modification
- Mechanisms Of Silencing
- Replication And Chromatin Assembly
- Chromosome Organization And Condensation
- Imprinting, X-Inactivation, Dosage Compensation
- Heterochromatin And Centromeres
- Transcriptional Insulators And Chromatin Regulators
- Nucleosome Structure And Transcription
- Chromatin And Transcription

** Application deadline voted for conference is May 1, 1998

COMPUTATIONAL CHEMISTRY
TILTON SCHOOL
TILTON, NH
JUNE 28 - JULY 3, 1998
Jeffry Madura, Chair
Terry R. Stouch, Vice-Chair

- Advances in Quantum Mechanics (Methods and Applications)
- Advances in Computer Simulations (Methods and Applications)
- Advances in QM/MM (Methods and Applications)
- Interfacial Simulations
- Free Energy Perturbation (Methods and Applications)
- Receptor-Substrate Interactions
- Advances in Force-Fields (Methods and Applications)

CORRELATED ELECTRON SYSTEMS
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JULY 19 - 24, 1998
Laura Greene & Subir Sachdev, Co-Chairs
Andrew Millis, Vice-Chair

- Spin Chains and Ladders
- Mesoscopic Superconductivity
- Broken Time-Reversal Symmetry
- Heavy Fermions
- Two-Dimensional Electron Gasses

CORROSION, AQUEOUS
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JULY 5 - 10, 1998
Douglas Sinclair, Chair
Gerald Frankel, Vice-Chair

- Corrosion Research Applied to Power Generation
- Fundamental Processes on Surfaces
- Corrosion/Reliability Prediction
- Integrity / Structure of Passive Films
- Corrosion Mechanisms and Prevention in Fluid Delivery Systems
- Localized Corrosion
- Reliability of Coatings / Protective Films for Corrosion Prevention
- Corrosion Mechanisms and Prevention with Infrastructure Materials
- Corrosion Research Beyond the Year 2000

DEVELOPMENTAL PHYSIOLOGY (NEW)
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
AUG. 2 - 7, 1998
Lionel Jaffe & Larry Etkin, Co-Chairs

- Oxygen Gradients
- Developmental Waves
- Calcium Gradients
- Cell Tip Growth
- Symmetry Breaking & Polar Transport - I, II, III
- Endogenous Electrical Controls
- Endogenous Mechanical Controls

DIAMOND SYNTHESIS
QUEEN'S COLLEGE
OXFORD, UK
AUG. 23 - 28, 1998
Karen Gleason, Chair
Tom Owano, Vice-Chair

- Gas-Phase Chemistry and Diagnostics
- Surface Chemistry and Mechanisms
- Doping and Defects
- Texture Evolution
- Field Emission
- Negative Electron Affinity
- Optoelectronic Properties
- Mechanical Properties

DISORDER IN MATERIALS
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JULY 19 - 24, 1998
Sherwin J. Singer, Chair
Dan A. Neumann, Vice-Chair

- Ionic Solids and Ferroelectrics
- Highly Quantum Behavior in Materials
- Biomaterials and Macromolecular Materials
- Surfaces
- Dynamics in Solids
- Glasses
- Smart Materials

DNA ALTERATION IN TRANSFORMED CELLS
COLBY-SAWYER COLLEGE
NEW LONDON, NH
AUG. 9 - 14, 1998
Melanie Ehrlich, Chair
William Bennett, Vice-Chair

- Inherited Mutations Contributing to Oncogenesis
- DNA Methylation and Cancer
- Imprinting and Cancer

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- DNA Repair and Oncogenesis
- Late-Breaking Topics
- The Contribution of Karyotypic Instability to Cancer Formation and Tumor Progression
- Inherited Mutations Contributing to Breast Cancer
- Cancer: Endogenous and Hormonal Mechanisms of Mutagenesis
- Cancer Therapy: New Strategies Targeting DNA Damage, DNA Repair, and Apoptosis

DRUG METABOLISM
HOLDERNESS SCHOOL
PLYMOUTH, NH
JULY 5 - 10, 1998
Henry Strobel, Chair
Steve Wrighton, Vice-Chair

- Investigations Into The Binding Of And Catalytic Mechanism Of The Cytochromes P450
- The Role Of Phase I And Phase II Enzymes In Estrogen Metabolism / Carcinogeneses
- Prodrug Design, Activation And Targeted Drug Delivery
- Recent Developments In Enzymes Of Phase II Drug Metabolism
- Activities Of "New" Forms Of Cytochrome P450 And The Arachidonate Cascade: A Functional Role For The Hemoprotein In The Oxidative Bioactivation Of Arachidonic Acid
- Transporters And Their Involvement In Drug Bioavailability
- Pharmacogenetic Influences On Drug Metabolism And Availability
- Advances In Bioanalytical Techniques

EDUCATION IN MATERIALS SCIENCE (3 DAY)
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JULY 26 - 29, 1998
Thomas G. Stoebe & Thomas P. Pearsall, Co-Chairs

- The Challenge: Improving and Broadening Introductory Courses in Materials Science and Engineering at the Introductory Level
- Innovations In Materials Education I: New Course Formats, Demonstrations and Classroom Activities That Enhance Learning
- Innovations in Materials Education II: Ideas From Those Who Do It
- Solutions And Approaches: Multimedia, Web-Based Instruction, Hands-on Approaches
- Inspiration From Those Who Have Been Thinking About This Problem
- Next Steps for a National Strategy

ELECTRODEPOSITION
COLBY-SAWYER COLLEGE
NEW LONDON, NH
AUG. 9 - 14, 1998
Gery R. Stafford, Chair
John L. Stickney, Vice-Chair

- UPD / Electrocrystallization
- Morphology
- Additives
- Deposition Involving Semiconductors
- Nanostructures
- Alloy Deposition
- Novel Materials / Technology
- Electroless Deposition

ELECTRON DISTRIBUTION & CHEMICAL BONDING
QUEEN'S COLLEGE
OXFORD, UK
AUG. 30 - SEPT. 4, 1998
Karlheinz Schwarz, Chair
Claude Lecomte, Vice-Chair

- Radiation Sources: Synchrotron, (Polarized) Neutrons, X-Rays, Gamma-Rays, Electron Diffraction
- Instrumentation: Area Vs. 1-D Detectors
- Modeling And Analysis: Maximum Entropy Method, Refinements
- Theory: Density Functional, Order N, Electrostatics
- New Directions: Time-Resolved Phenomena, High Pressure, Electric Field, Excited States
- Biochemistry, Proteins
- Applications: Material Sciences, Molecules And Complexes, Inorganic Solids

ELECTRON DONOR / ACCEPTOR INTERACTIONS
SALVE REGINA UNIVERSITY
NEWPORT, RI
AUG. 9 - 14, 1998
Marshall Newton, Chair
Jan Verhoeven, Vice-Chair

- Intra- And Intermolecular Electron, Hole, And Energy Transfer, Including Processes In Polyradical Systems And Duplex DNA
- Novel Spectroscopic Features And Consequences Of Electron Spin In Charge Transfer Systems
- Electron And Energy Transfer And Conductance In Single Atom And Single Molecule Systems
- Interfacial Electron Transfer Involving Film-Modified Metal And Semiconductor Electrodes And Metal Clusters
- Theoretical And Computational Modeling Of Homogeneous And Interfacial Electron Transfer Kinetics And STM Imaging
- Coupling Of Electron Transfer And Energy Transduction
- Formulation And Implementation Of Design Principles For Molecular Electronics, Optoelectronics, Photonics, And Photovoltaics

ELECTRON SPECTROSCOPY
NEW ENGLAND COLLEGE
HENNIKER, NH
JULY 26 - 31, 1998
C. Denise Caldwell, Chair
Peter Johnson, Vice-Chair

- Applications Of Electron Spectroscopy In Industry And Medicine
- Photoelectron Spectrometry On A Femtosecond Timescale
- CMR And Other Oxides
- Spectroscopy And The STM
- Probing Nuclear Motion In Atoms And Molecules
- Photoelectron Spectroscopy Of Molecular Clusters
- Soft X-Ray Emission
- New Ideas And Hot Topics From The Posters
- A View Into The Future

ELECTRONIC PROCESSES IN ORGANIC MATERIALS
SALVE REGINA UNIVERSITY
NEWPORT, RI
JULY 26 - 31, 1998
Shaul Mukamel, Chair
Dietrich Haarer, Vice-Chair

- Conjugated Polymers
- Excitons In Confined Spaces; Molecular Superlattices
- Single Molecule Optical Spectroscopy
- Charge Transport
- J-Aggregates, Biological Complexes, Dendrimers
- Carbon Nanotubes
- Recent Device Applications, Organic Light Emitting Diodes
- Holographic And Photorefractive Materials
- Semiconductor Nanostructures

ENERGETIC MATERIALS
HOLDERNESS SCHOOL
PLYMOUTH, NH
JUNE 14 - 19, 1998
Steve Coffey & Anatoly N. Dremin, Co-Chairs
Peter J. Haskins, Vice-Chair

- Directions For Energetic Materials Research
- Crystal Morphology And Deformation Effects On Initiation
- Initiation Processes
- New Synthesis
- Combustion
- Localization, Initiation And Modeling
- Fast Spectroscopy
- The Big Picture

ENVIRONMENTAL ENDOCRINE DISRUPTORS
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JULY 12 - 17, 1998
Harriette L. Phelps, Chair
Brent D. Palmer, Vice-Chair

- State Of The Art Presentations
- Novel Mechanisms Of Estrogen Toxicity
- Mechanisms Of Endocrine Disruption
- Reproductive Impairments In Non-mammalian Vertebrates
- Reproductive And Developmental Impairments In Mammals
- Developmental Disruption In Non-mammalian Vertebrates
- Impairment Of Neurological Development In Mammals
- Thyroid Disruption And Developmental Effects
- Wildlife Reproduction And Population Impairments

ENVIRONMENTAL SCIENCES: WATER
NEW ENGLAND COLLEGE
HENNIKER, NH
JUNE 14 - 19, 1998
Philip Gschwend, Chair

- Anticipating Adverse Effects From Chemicals In The Environment
- Anticipating The Behaviors And Effects Of Metals
- Anticipating The Behaviors And Effects Of Organic Compounds
- Anticipating Photochemical Processes
- Anticipating Biological Processes
- Anticipating Chemical Fates Using Models?
- What Does It Cost Not To Anticipate Environmental Problems?

ENZYMES, CO-ENZYMES & METABOLIC PATHWAYS
KIMBALL UNION ACADEMY
MERIDEN, NH
JULY 12 - 17, 1998
Donald Hupe & John Blanchard, Co-Chairs
Dan Herschlag & Charles B. Grissom, Co-Vice-Chairs

- Bacterial Lipid and Lipopolysaccharide Biosynthesis
- Protein Prenylation
- The Many Faces of Flavins
- Enzymes: Structure, Mechanism & Mutagenesis I, II
- Bacterial and Fungal Antibiotic Synthesis
- Matrix Metalloproteinases
- Rose Symposium

GRAVITATIONAL EFFECTS ON LIVING SYSTEMS
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JULY 12 - 17, 1998
Michael L. Evans, Chair
Ruth Anne Eatock, Vice-Chair

- Limits of Gravisensing
- Evolution of Gravisensing / Response Systems
- Cytoskeleton / Extracellular Matrix Interaction
- Evolution & Transduction Mechanisms in Load Bearing Systems
- Evolution / Genetics of Gravitropism and Mechanosensing
- Primitive Graviresponse Systems
- Specialized Mechanosensors
- Cellular Level Systems
- Mechanosensivity / Development
- Genetics and Sensory Systems
- Astrobiology -- Gravity and Evolution, the Big Picture

GREEN CHEMISTRY
KIMBALL UNION ACADEMY
MERIDEN, NH
AUG. 16 - 21, 1998
William Tumas, Chair
Roger A. Sheldon & James Clark, Co-Vice-Chairs

- Innovations In Heterogeneous Catalysis
- Advances In Homogeneous Catalysis And Chiral Synthesis
- Green Chemistry In Biocatalysis And Bioprocessing
- Environmentally Benign Solvents
- Environmentally Benign Chemical Processing And Applications
- Special Topics: Industrial Ecology And Global Climate Change
- Environmentally Benign Synthesis
- Heterogenization For Enhanced Catalysis And Separations

HEMOSTASIS
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JUNE 28 - JULY 3, 1998
J. Evan Sadler, Chair
Lawrence Brass, Vice-Chair

- Toward An Integrated Model Of Hemostasis
- Platelet Signaling Pathways
- Novel Gene And Protein Therapies For Hemostatic And Vascular Disorders
- Integrins And Platelet Communications
- Genes, Development, And Hemostasis
- Cell Surfaces And Cell-Cell Interactions
- Structure And Function Of Protein Domains
- Megakaryocytes And The Birth Of Platelets

HETEROCYCLIC COMPOUNDS
SALVE REGINA UNIVERSITY
NEWPORT, RI
JUNE 28 - JULY 3, 1998
Paul Ornstein, Chair
Joe Kopopelski, Vice-Chair

- Discovery and Synthesis of Heterocycle-Based Drugs
- Methodology for the Synthesis of Heterocyclic Compounds
- Heterocyclic Natural Products Synthesis
- Biologically Interesting Heterocycles

HIGH PRESSURE, RESEARCH AT
KIMBALL UNION ACADEMY
MERIDEN, NH
JUNE 21 - 26, 1998
James Schilling, Chair
Isaac Silvera, Vice-Chair

- Life under Extreme Conditions (special session)
- Properties of Hydrogen and Other Molecular Solids at Extreme Densities
- Superconductivity under High and Ultrahigh Pressures
- Materials Science at High Pressure: from Superhard Fullerenes to Novel High-Tc Superconductors
- Unsolved Questions in the Material Properties of Planetary Interiors
- Pressure Effects in Colossal Magnetoresistance Compounds
- Recent Advances in High Pressure Techniques
- Phase Diagrams of Ice, Iron and C60
- Recent Shock-Wave Studies
- Some Recent Developments in Geochemistry and Geophysics
- Neutron Diffraction Studies under Pressure on Exotic Materials
- Synthetic Diamond Films and Crystals
- Effect of Pressure on the Properties of Strongly Correlated Electron Systems
- High-Resolution Thermal Expansion Studies of Matter
- Magnetism at Extreme Densities

HIGH TEMPERATURE MATERIALS: PROCESSING & DIAGNOSTICS
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JULY 19 - 24, 1998
James Gole, Chair
Nathan Jacobson, Vice-Chair

- Vapor Phase Chemistry
- Vapor Phase Chemistry at the Interface - High Temperature Diagnostics
- Modeling of High Temperature Systems
- Chemical Vapor Deposition and Plasma Diagnostics; Experiments and Modeling
- Interface Reactions / Displacement Reactions
- Fundamental Gas / Solid Reactions at High Temperatures
- High Performance Coatings - Nanostructures, Tribological Coatings, Thermal Barrier Coatings
- High Temperature Nanostructured Materials - From Nanostructures to Nanowires

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HORMONAL & NEURAL PEPTIDE BIOSYNTHESIS
NEW ENGLAND COLLEGE
HENNIKER, NH
AUG. 9 - 14, 1998
Betty Eipper, Chair
Robert S. Fuller, Vice-Chair

- Genetic Models For Understanding Processing Enzyme Function In Vivo
- The TGN: Models For Membrane Protein Localization And Sorting
- Biochemistry And Structural Analysis Of Processing Enzymes
- Sorting Of Lumenal Proteins
- Processing Enzymes That Function Outside Of The Secretory Pathway
- Sorting Of Essential Membrane Proteins
- Developmental And Physiological Regulation Of The Synthesis And Processing Of Hormonal And Neural Peptides
- Formation And Maturation Of Secretory Vesicles
- Release Of Bioactive Peptides: The Process Of Exocytosis

HORMONE ACTION
KIMBALL UNION ACADEMY
MERIDEN, NH
JULY 26 - 31, 1998
David Moore, Chair
Holly Ingraham, Vice-Chair

- Cell Signaling In Development
- Cell Signaling In Apoptosis
- Specificity And Cross-Talk In Kinase Pathways
- Endocrine Regulation Of The Cell Cycle
- Animal Models Of Obesity
- Hormone Activation And Metabolism
- Transcriptional Coactivators
- Metabolic Regulation Of Gene Expression

ILLICIT SUBSTANCE DETECTION: CHEMICAL AND BIOLOGICAL
SALVE REGINA UNIVERSITY
NEWPORT, RI
AUG. 9 - 14, 1998
David Boyd & Keith Ward, Co-Chairs
Raymond D. Mintz, Vice-Chair

- Policy Overview and Problem Definition
- First Responders
- Continuous Detection
- Medical Aspects of Detection
- Forensic Detection
- Improvised Chemical and Biological Devices
- Government R & D Programs
- Panel Discussion: Policy Considerations and Detection Science

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INDUSTRIAL ECOLOGY (NEW)
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JUNE 7 - 12, 1998
Thomas Graedel, Chair

- Anthropogenic Perturbations of Natural Materials Cycles
- Flows of Materials in the Technological Society - I, II
- Materials Use Applications - I, II
- Assessing Resource Limits - I, II
- Industrial Ecology Futures - I, II

INORGANIC CHEMISTRY
SALVE REGINA UNIVERSITY
NEWPORT, RI
JULY 19 - 24, 1998
Dennis Riley, Chair
Kim Dunbar, Vice-Chair

- Main Group / Boron Chemistry
- Electronic Aspects of Inorganic Chemistry
- Oxidation Catalysis and Oxygen Binding
- Structure and Bonding
- Mechanistic
- Solid State and Materials Chemistry
- Organometallic Chemistry
- Metals in Biology

INTERFACES, CHEMISTRY AT
KIMBALL UNION ACADEMY
MERIDEN, NH
JULY 19 - 24, 1998
Kyle Vanderlick, Chair
Leonid Turkevich, Vice-Chair

- Theory and Modeling of Interfaces and Fluid Microstructures
- Small, Medium, and Large Self-Assembling Systems
- Reaction Chemistry at External and Internal Interfaces
- Interface Induced Molecular Assemblies
- Structured Colloidal Assemblies
- Adsorption at Fluid-Fluid Interfaces
- Thin Organic Films and Sensors
- Surface Forces and Colloidal Interactions
- Dynamics at Solid-Fluid Interfaces

INTERIOR OF THE EARTH
NEW ENGLAND COLLEGE
HENNIKER, NH
JUNE 28 - JULY 3, 1998
Michael Gurnis, Chair
John Vidale, Vice-Chair

- Mapping The Upper Mantle, Lithosphere, And Crust
- Magmatism And The Upper Mantle
- Long Term Tectonic Cycles
- The Continental Lithosphere And Tectosphere
- Rheology Of Lithosphere And Upper Mantle
- Plate Tectonics And Mantle Convection
- Unresolved Problems And Future Directions

INTERMEDIATE FILAMENTS
HOLDERNESS SCHOOL
PLYMOUTH, NH
JULY 12 - 17, 1998
Jean-Pierre Julien, Chair
E. Birgit Lane, Vice-Chair

- Evolution and Structure of IF Proteins
- Neuronal IFs: Assembly, Transport and Phosphorylation
- Regulation and Function Of IFs
- Regulation and Functions Of IFs: Mouse Models
- Keratins in Skin Disorders and in Cancer
- Neurofilaments in Neurodegenerative Diseases
- Intermediate Filament Linker Proteins
- Emerging Areas and Poster Discussion
- IF-Membrane Interactions

ION CHANNELS
TILTON SCHOOL
TILTON, NH
JULY 5 - 10, 1998
David Clapham, Chair
Chris Miller, Vice-Chair

- Ion Channels and Control of Transcription
- Ion Channel Structure
- Permeation of Ion Channels
- Ion Channel Gating
- New Channels
- Ion Channel Modulation
- Ion Channel Localization
- Transporters as Ion Channels

LASER INTERACTIONS WITH MATERIALS
PROCTOR ACADEMY
ANDOVER, NH
JUNE 7 - 12, 1998
Richard Haglund, Chair
David Geohegan, Vice-Chair

- Frontiers In Laser-Materials Interactions: Ultrafast And Ultrasmall
- Electronic Excitations In Laser-Materials Interactions
- Vibrational Excitations In Laser-Materials Interactions
- Quantum-Confined Systems: Fabrication And Applications
- Laser-Liquid Interactions In Thin Films And Biological Systems
- Laser-Based Materials Synthesis And Processing
- Laser-Based Materials Analysis And Applications
- Laser-Generated Plumes And Plasmas: Physics And Applications
- Laser-Fabricated Materials: The Next Generation

LASERS IN MEDICINE & BIOLOGY
KIMBALL UNION ACADEMY
MERIDEN, NH
JUNE 14 - 19, 1998
Joseph Izatt & Willem Star, Co-Chairs

- Optical Spectroscopy For Detection And Monitoring Neoplasia
- Frontiers In Microscopy
- Biomedical Optics And Laser Treatment Of Human Skin
- Photon Migration For Tissue Diagnostics And Imaging
- Optical Coherence Tomography
- Photodynamic Therapy
- Origins Of Tissue Optical Properties And Their Role In Light Transport
- Photothermal And Photomechanical Microeffects
- Therapeutic Laser Applications In Medicine And Dentistry

LIPOPROTEIN METABOLISM
KIMBALL UNION ACADEMY
MERIDEN, NH
JUNE 28 - JULY 3, 1998
David Williams, Chair
Henry Ginsberg, Vice-Chair

- Membrane-Bound Transcription Factors That Control Lipid Synthesis
- Intracellular Cholesterol Transport: Genetics, Membrane Domains, And Caveolae
- Function And Regulation Of Scavenger Receptor BI
- ACAT: Functional Studies And New Genes
- Metabolism Of Atherogenic Lipoproteins In Humans And Animal Models
- New Lipoprotein Receptors And Receptor Gene Therapy
- Molecular Mechanisms Of VLDL Assembly And Secretion
- Neurobiology Of ApoE And Its Receptors
- Bile Acid Metabolism: Novel Pathways, Orphan Receptors, And Genes That Cause Gallstones

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LYSOSOMES
PROCTOR ACADEMY
ANDOVER, NH
JUNE 28 - JULY 3, 1998
Sandra Schmid & Hans Geuze, Co-Chairs
Juan Bonifacino, Vice-Chair

- Endocytosis At The Synapse
- Mechanisms Of Vesicle Formation
- Molecular Interactions At The Endosomal Surface
- Endocytic Transport And Protein Sorting
- Alternate Pathways To And From The Lysosome
- Lipids And Lipid Trafficking In The Endocytic Pathway
- Endocytosis And Signal Transduction
- Cellular And Viral Virulence Factors

MACROMOLECULAR ORGANIZATION & CELL FUNCTION
QUEEN'S COLLEGE
OXFORD, UK
SEPT. 13 - 18, 1998
John E. Wilson & Douglas Kell, Co-Chairs
Natalie Cohen & Hans Westerhoff, Co-Vice-Chairs

- Cell Structure And Microenvironments
- Cellular Compartmentation And Translocation
- Molecular Basis For Channeled Metabolism
- Non-Invasive Approaches For Exploring Macromolecular And Cellular Organization
- Enzyme Organization And Channeled Metabolism
- Organization Of Gene Expression
- Organization And Compartmentation Of Glycolysis And Glycogen Metabolism
- Integrative Biology
- Cellular Mobility And Intracellular Transport

MALARIA (NEW)
SOMERVILLE COLLEGE
OXFORD, UK
JULY 26 - 31, 1998
Dyann Wirth, Chair

- Malaria Epidemiology: Where Are The Gaps In Our Knowledge?
- Where Do We Stand With Vaccines: Opportunities And Challenges
- Management Of Malaria: What Can We Expect For The 21st Century
- Pathology: Do We Know Why Children Die?
- Bednets: Current Status And Prospects For The Future.
- Vector Biology: New Strategies For Vector And Transmission Control?
- The Malaria Genome: What Does It Promise And What Are The Limitations?

(cont. on next page)

- Drugs And Drug Resistance: Challenges From Discovery To The Pharmacy?
- The Human Immune Response: Where Do With Stand With Current Knowledge?
- Cell Biology Of Malaria: What Do We Know About Host-Parasite Interactions?
- Lessons And Insights From Other Diseases

MAMMALIAN GAMETOGENESIS & EMBRYOGENESIS
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JULY 5 - 10, 1998
John J. Eppig, Chair
Gerald M. Kidder, Vice-Chair

- Physiology Of Gametes And Preimplantation Embryos
- Cell-Cell Communication Regulating Gamete And Preimplantation Embryo Development
- Genomic Modification In Gametes And Preimplantation Embryos
- Gene Expression In Gametes And Preimplantation Embryos
- Regulation Of Meiosis
- Development Of Human Gametes And Preimplantation Embryos
- Chromatin Structure-Function Relationships In Gametes And Preimplantation Embryos
- Translational And Post-Translational Control Mechanisms In Germ Cells And Early Embryos

MECHANISMS OF TOXICITY
NEW ENGLAND COLLEGE
HENNIKER, NH
JULY 26 - 31, 1998
Cheryl Walker, Chair
James L. Stevens, Vice-Chair

- Oxidants, Cytokines And Tissue Injury
- Toxicant-Induced Alterations In Gene Transcription
- Receptor-Mediated Toxicity
- Endocrine Disruptors
- Late Breaking Research
- Genetic Susceptibility
- Novel Technologies And Predictive Assays
- Cell Signaling And Apoptosis

MEDICINAL CHEMISTRY
COLBY-SAWYER COLLEGE
NEW LONDON, NH
AUG. 2 - 7, 1998
James McCarthy, Chair
William Michne, Vice-Chair

- Targeted Bioavailability
- Gender Based Drug Discovery
- Advances In Membrane and Ion Channel Protein Structure
- New Methods in Pain Control
- Purinoceptors as Targets for Novel Therapeutics
- Screening Technologies for the 21st Century
- Implications of Cloning to the Future of Medicine
- Special Topics in Medicinal Chemistry

MEIOSIS
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JUNE 14 - 19, 1998
Terry Orr-Weaver, Chair
Michael Lichten, Vice-Chair

- Chromosome Structure And Nuclear Architecture In Meiosis
- Chromosome Condensation, Alignment, And Synapsis
- Recombination Nodules And Position Of Recombination
- Initiation Of Meiotic Recombination
- Biochemistry Of Recombination And Mismatch Correction
- Homolog And Sister-Chromatid Segregation
- Checkpoints And Feedback Controls
- Control Of The Meiotic Cell Cycle
- Germ Cells And Gametogenesis

MEMBRANE TRANSPORT PROTEINS, PHYSIOLOGICAL & PATHOLOGICAL IMPLICATIONS OF (NEW)
TILTON SCHOOL
TILTON, NH
JULY 19 - 24, 1998
Matthias Hediger, Chair
Michael Kavanaugh, Vice-Chair

- Neurotransmitter Transporters - I, II
- Epithelial Absorption Of Amino Acids And Peptides
- Metal Ion Transporters
- Glucose Transport And Pathophysiology
- ABC Transporters And Cystic Fibrosis
- Roundtable Discussion
- Cation And Anion Transporters
- Water And Urea Transport

MICROBIAL STRESS RESPONSE
NEW ENGLAND COLLEGE
HENNIKER, NH
AUG. 2 - 7, 1998
Bruce Demple, Chair
Mary Lidstrom, Vice-Chair

- Starvation
- Responses To DNA Damage
- Pathogen Responses
- Oxidative Stress
- Global Analysis Of Stress Responses
- Regulation of Antibiotic Resistance
- Ion and pH Stress
- Metal Stress
- Complex Sensing Systems For Physiological Regulation

MICROBIAL TOXINS & PATHOGENICITY
PROCTOR ACADEMY
ANDOVER, NH
JULY 12 - 17, 1998
Erik L. Hewlett, Chair
James Kaper, Vice-Chair

- *In Vivo* Apoptosis
- Recent Advances In Technology Applicable To Toxin / Pathogenesis Research
- Regulation Of Gene Expression
- Microbe-Host Signaling
- New Toxins / Mechanisms
- Genomics
- Structural Biology Of Toxins / Virulence Factors
- Secretion Of Toxins / Virulence Factors
- Plant Pathogens And Shared Virulence Factors

MITOCHONDRIA & CHLOROPLASTS
LES DIABLERETS
SWITZERLAND
SEPT. 13 - 18, 1998
Gottfried Schatz, Chair
David Stern, Vice-Chair

- Structure And Transmission Of Organelle Genomes
- Evolution And Transmission Of Organelles
- Role In Development And Aging
- Apoptosis And Disease - I, II
- Novel Aspects Of Mitochondrial Cell Biology
- Interactions Between Mitochondria And Chloroplasts
- Nucleo-Organelle Interactions
- Import Of Proteins Into Mitochondria - I, II
- Novel Functional Aspects

MODELING OF FLOW IN PERMEABLE MEDIA
PROCTOR ACADEMY
ANDOVER, NH
AUG. 2 - 7, 1998
Thomas Hewett, Chair
Linda M. Abriola, Vice-Chair

- New Technologies And Emerging Applications
- Pore-Scale Phenomena
- Quantitative Geological Descriptions
- Heterogeneity And Upscaling
- Fractured Systems
- Characterization, Parameter Estimation And Uncertainty
- Microbial And Chemical Transport
- Unsaturated Zone Processes And Multiphase Flow
- Remediation And Recovery / Field-Scale Flows

MOLECULAR AND CELLULAR NEUROBIOLOGY (NEW)
BEIJING, CHINA
SEPT. 6-11, 1998
Bai Lu & Chien-ping Wu, Co-Chairs
Yi Rao, Vice-Chair
Co-sponsored by the Xiang Shan Science Conferences

- Neural Patterning
- Cell Fate Determination and Differentiation
- Cell Death and Neuronal Degeneration
- Trophic Factors
- Synaptic Development
- Synaptic Plasticity
- Signaling in the Nervous System
- Neurotransmitter Receptors and Ion Channels

MOLECULAR BASIS OF ONE-CARBON METABOLISM (NEW)
NEW ENGLAND COLLEGE
HENNIKER, NH
JUNE 28 - JULY 3, 1998
F. Robert Tabita, Chair

- Molecular Physiology And Biochemistry: Pathways And Enzymes - I, II
- Molecular Regulation And Genetics - I, II
- Enzyme Structure And Function - I, II
- Molecular Biology-Biochemistry Interface / Genomics And Evolution
- Natural Systems
- Basic Studies With Applied Ramifications

MOLECULAR BIOLOGY, DIFFRACTION METHODS IN
PROCTOR ACADEMY
ANDOVER, NH
JUNE 21 - 26, 1998
Randy Read, Chair
Andy Howard, Vice-Chair

- Crystals
- Pushing The Limits Of Data Collection
- Adventures In Phasing
- New Tools For Fitting And Refinement
- Extreme Crystallography
- Complementary Techniques
- Modeling And Analysis
- Crystallography And Genomics
- Late-Breaking Developments

MOLECULAR BIOLOGY OF THE EGG (NEW)
PROCTOR ACADEMY
ANDOVER, NH
AUG. 16 - 21, 1998
Henry Hagedorn & Lynn Manseau, Co-Chairs
S. Y. Takahashi, Vice-Chair

- Oocyte Coverings - The Chorion, Zona Pellucida And Cortical Granules
- The Germ Line In Insects And The Mouse
- The Cytoskeleton - Actin, Microtubules And The Formation Of Ring Canals
- Receptors For Vitellogenin And Sperm, And 'Giant' Receptors
- Vitellogenins - Protein Structure, Regulation Of Gene Expression, And The Effects Of Environmental Contaminants On Reproductive Biology
- Patterning - The Establishment Of Polarity
- RNA Localization And Translational Control

MOLECULAR CYTOGENETICS
PROCTOR ACADEMY
ANDOVER, NH
JULY 19 - 24, 1998
Thomas Cremer & Peter Lichter, Co-Chairs
Daniel Pinkel & Barbara Trask, Co-Vice-Chairs

- Advances In Microscopy
- Molecular Cytogenetic Methods - I, II
- Genome Scanning
- Chromosomes In Meiosis
- Metaphase And Interphasechromosomes
- Chromosome And Nuclear Architecture - I, II
- Chromosome Evolution

MOLECULAR GENETICS
SALVE REGINA UNIVERSITY
NEWPORT, RI
JULY 19 - 24, 1998
Patrick O'Farrell, Chair
Robert Kingston, Vice-Chair

- Developmental Transitions In The Cell Cycle
- Meiosis
- The G1 To S Transition
- Growth Control
- Moving Chromosomes In Mitosis
- Asymmetric Division
- Gene Expression And Cell Cycle Progress
- Heritable Changes In Gene Expression
- Chromatin Structure And Late Replication

MOTILE & CONTRACTILE SYSTEMS
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JUNE 7 - 12, 1998
Mary Beckerle, Chair
Gary Borisy, Vice-Chair

- Keynote Address: Myosin Structure, Function and Regulation
- Motor Mechanics And Molecular Structure Of Cytoskeletal Molecules
- Motors, Membrane Traffic, And Cell Organization
- Regulation Of Actin Assembly And Organization
- Microtubule Assembly And Organization
- Cell Locomotion
- Cell Division
- Signal Transduction And Cytoskeletal Function
- Cytoskeleton, Positional Information And Development

MULTIPHOTON PROCESSES
TILTON SCHOOL
TILTON, NH
JUNE 14 - 19, 1998
Kenneth C. Kulander, Chair
John Hepburn, Vice-Chair

- Coherent Control Of Quantum Dynamics
- Above Threshold Ionization
- Rydberg Dynamics
- Molecules And Clusters In Strong Laser Fields
- Molecular Structure And Dynamics
- Fragmentation
- Ultrashort Pulses And Ultrashort Wavelengths

MUTAGENESIS
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JUNE 21 - 26, 1998
Susan Wallace, Chair
Josef Jiricny, Vice-Chair

- DNA Polymerase Structure / Function
- DNA Polymerase Fidelity / Lesion Bypass
- Mismatch Repair
- Endogenous Damage: Repair
- Endogenous Damage: Global Responses and Mutagenesis
- Homologous Recombination
- Non-homologous Recombination and Double Strand Break Repair
- Interrelationships Among Repair Pathways and Cell Cycle
- At Risk Sequences in the Human Genome

MYOGENESIS
TILTON SCHOOL
TILTON, NH
AUG. 16 - 21, 1998
Charles Ordahl, Chair
Barbara Wold, Vice-Chair

- Cardiac Myogenesis
- Skeletal Muscle Patterning
- Molecular Regulation Of Myogenesis
- Specification And Proliferation Of Myogenic Precursor Cells
- Adult Muscle Degeneration And Repair
- Perspectives On Regeneration And Determination
- Smooth Muscle And Vascular Development
- Signalling And Cell-Cell Interactions In Myogenesis
- Myogenic Determination

NANOSTRUCTURE FABRICATION
TILTON SCHOOL
TILTON, NH
JUNE 21 - 26, 1998
John N. Randall, Chair
Christie Marrian, Vice-Chair

- Atom Lithography - Putting Atoms Where You Want Them
- Messing With Molecules - Identification And Construction
- Making Micro Lithography Systems
- Next Generation Lithography With Electrons, Ions, And X Rays
- Next Generation Lithography With DUV And EUV
- Dna Computing Technology
- Nano Electronics
- Micro Electro Mechanical Systems - New Applications
- Artificial Life In A Computer System

NATURAL PRODUCTS
NEW ENGLAND COLLEGE
HENNIKER, NH
JULY 5 - 10, 1998
Steven Davidsen, Chair
George F. Majetich, Vice-Chair

- Synthetic Methods And Natural Products Total Synthesis
- Chemical Biology Of Natural Products
- Genetic Control Of Natural Product Biosynthesis
- Natural Product Isolation, Diversity And Function
- Pharmaceutical Agents From Natural Products

NEURAL DEVELOPMENT
SALVE REGINA UNIVERSITY
NEWPORT, RI
JULY 5 - 10, 1998
Susan McConnell, Chair
David Anderson, Vice-Chair

- Neural Induction And Pattern Formation
- Regionalization Of The Neuraxis
- Stem Cells And Fate In Forebrain
- Fate Determination Of Neurons And Glia
- Cell Migration And Axon Outgrowth
- Axon Guidance
- Synaptic And Glial Differentiation
- Plasticity, Systems, And Behavior

NITROGEN FIXATION
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JUNE 28 - JULY 3, 1998
Dennis Dean, Chair
Lance Seefeldt, Vice-Chair

- Fixing Nitrogen-Overviews of the Genetic-Biochemical-Chemical Systems
- Mechanisms of Gene Regulation
- Related Systems
- Biochemical Mechanism - I, II
- Metallocenter Assembly
- Chemistry of Nitrogen Fixation
- Nitrogen Cycle

NUCLEAR CHEMISTRY
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JUNE 14 - 19, 1998
Lee Sobotka, Chair
I. Yang Lee, Vice-Chair

- Fusion and Fission Dynamics
- Excitation Energy Generation

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- Isospin In Intermediate Energy Reactions
- Time Dependence Of Multifragmentation
- Significance of the Reducibility of Fragmentation Data
- In-Medium Effects(I): Cross Sections And Clustering
- Flow And HBT Results
- In-Medium Effects(II): Mesons Masses And Spectral Functions
- J/Psi Suppression
- Disoriented Chiral Condensate
- Recent PET Results And Hadrontherapy Update
- Poster Session

NUCLEAR WASTE & ENERGY
SALVE REGINA UNIVERSITY
NEWPORT, RI
AUG. 2 - 7, 1998
Alan Waltar, Chair
Henri Metivier, Vice-Chair

- Energy Overview
- Civilian Nuclear Fuel Cycle
- Military Nuclear Waste
- Nuclear Waste Treatment
- Nuclear Proliferation
- Health Effects of Radiation
- Beneficial Uses of Nuclear Waste
- Environmental Protection
- R&D Futures / Policy Implications

NUCLEIC ACIDS
SALVE REGINA UNIVERSITY
NEWPORT, RI
JUNE 21 - 26, 1998
Alan Lambowitz & Carol Greider, Co-Chairs
Jim Maher & James R. Williamson, Co-Vice-Chairs

- Genome And Protein Evolution
- RNA Structure and Function
- Transcription
- RNA Splicing And Processing
- DNA Replication
- Chromosome Structure / Chromatin
- DNA Recombination And Repair
- mRNA Translation And Stability
- RNA Transport And Localization

ORGANIC GEOCHEMISTRY
HOLDERNESS SCHOOL
PLYMOUTH, NH
AUG. 9 - 14, 1998
Kenneth E. Peters, Chair
John I. Hedges, Vice-Chair

- Geochemical Evidence For Past Life On Mars
- Organic Matter Preservation In Sediments
- Geochemistry Of Hydrothermal Ecosystems & Deep-Earth Microbes
- Chemostratigraphy & The Geochemistry Of Major Time Boundaries
- Computational Organic Geochemistry
- Thermochemical Sulfate Reduction
- Generation & Prediction Of Hydrocarbon Gases, CO_2, And Nitrogen
- Generation & Expulsion Of Hydrocarbons
- Reservoir Fluids, Seals & Dynamic Processes

ORGANIC REACTIONS & PROCESSES
NEW ENGLAND COLLEGE
HENNIKER, NH
JULY 12 - 17, 1998
William Bailey, Chair
Terry Rathman, Vice-Chair

- Advances in the Synthesis of Complex Organic Molecules and Natural Products
- Developments in Synthetic Methodology
- New Catalytic Bond-Forming Reactions
- Diastereoselective and Enantioselective Reactions
- Bioorganic Transformations
- The Role of Modern Theory in the Development of Organic Reactions and Processes
- Organometallic Reactions
- Pharmaceutical Process Development
- The Human Side of Organic Chemistry: A Photographic Tour

ORGANIC STRUCTURES AND PROPERTIES
UMINONAKAMICHI HOTEL
FUKUOKA, JAPAN
SEPT. 6 - 11, 1998
Yasuhiro Aoyama, Chair

- Supramolecules
- Molecular Alignment
- Molecular Devices
- Fullerenes and Organic New Materials
- Dendrimers and Hyperbranched Polymers
- Nanostructure Control in Organic Crystals

ORGANOMETALLIC CHEMISTRY
SALVE REGINA UNIVERSITY
NEWPORT, RI
JULY 26 - 31, 1998
Richard Schrock, Chair
Gary Silverman & Richard Fisher, Co-Vice-Chairs

- Chemistry on Surfaces
- Theory and Spectroscopy
- Advances in Olefin Polymerization Catalysis
- New Ligands and Functions
- Fundamental Studies and New Reactions
- Applications to Organic Chemistry and Catalysis
- Chemistry Involving Main Group Elements

PATTERN FORMATION IN THE EARTH SCIENCES
NEW ENGLAND COLLEGE
HENNIKER, NH
JULY 5 - 10, 1998
Ivan L'Heureux & Anthony Fowler, Co-Chairs

- Fundamental Concepts of Pattern Formation in Earth Sciences
- Patterns in Mineral Growth - Observations and Experiments
- Geomorphological Patterns
- Patterns and Fluid Geodynamics
- Temporal Patterns: Earthquakes, Sedimentation
- Patterns in Rocks
- Kinetic Models of Patterns in Earth Sciences
- Geopatterns: New Directions

PEPTIDE GROWTH FACTORS
KIMBALL UNION ACADEMY
MERIDEN, NH
AUG. 9 - 14, 1998
Joan Massague, Chair
Carl Henrik Heldin, Vice-Chair

- Mitogens And Cytokines - I, II, III
- Hedgehog
- TGF-β And BMP - I, II
- Wnt Signaling
- Contact Signaling
- Ephrins And Neurotrophins

PHOTONUCLEAR REACTIONS
TILTON SCHOOL
TILTON, NH
JULY 26 - 31, 1998
William Bertozzi, Chair
Cornelius Bennhold, Vice-Chair
Nicole d'Hose, European Coordinator

- The Structure of the Deuteron; Experiment and Theory
- Deep Inelastic Structure of the Nucleon: Spin, Flavor, and Gluons
- Electromagnetic Reactions with Few Nucleon Systems
- Structure Functions and Nucleon-Nucleon Correlations
- Nuclear Electromagnetic Structure Functions from (e,e'x) Reactions
- The Physics of Nucleon Resonances
- Pion and Eta, Photoproduction and Electroproduction
- Electromagnetic Sum Rules and Compton Scattering
- Reactions with Strangeness and Heavy Mesons from the Nucleon

PHYSICAL METALLURGY
HOLDERNESS SCHOOL
PLYMOUTH, NH
JUNE 21 - 26, 1998
Ronald Gibala & Samuel M. Allen, Co-Chairs
Rusty Gray & John Lewandowski, Co-Vice-Chairs

- Microstructure: New Scientific And Engineering Directions
- Modeling And Simulation Of Microstructures
- Microstructural Analyses Of Solidification And Melting
- Coarsening And Related Microstructural Instabilities
- Advances In Microstructural Characterization
- Novel Microstructures And Their Properties
- Microstructural Control For Money: Some Practical Problems
- New Horizons In Processing Of Microstructures
- What Have We Learned And Where Are We Going?

PLANT & FUNGAL CYTOSKELETON (3 DAY)
PROCTOR ACADEMY
ANDOVER, NH
AUG. 9 - 12, 1998
David G. Drubin, Chair
Zach Cande, Vice-Chair

- Motile Mechanisms
- Microtubules And Mitotic Regulation
- Strategies For Cell Division And Determination Of Division Planes
- Tip Growth / Polarity And Morphogenesis
- Real Time Analysis Of Cytoskeletal Dynamics
- Cell-Cell Interactions
- Mechanisms Of Actin Cytoskeleton Regulation

PLANT MOLECULAR BIOLOGY
NEW ENGLAND COLLEGE
HENNIKER, NH
JULY 19 - 24, 1998
Pamela Green, Chair
Robert Last, Vice-Chair

- Nuclear Regulation Of Gene Expression
- Cytoplasmic Control Of Gene Expression
- Gene Silencing
- Plant-Microbe Interactions

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- Metabolic Regulation
- Molecular Genetics Of Reproductive Development
- Keynote Lecture: Light, Brassinosteroids, And Arabidopsis Development
- Plant Responses To Environmental Signals
- Hormonal Control

PLASMA PROCESSING SCIENCE
TILTON SCHOOL
TILTON, NH
AUG. 9 - 14, 1998
Gerrit Kroesen, Chair
David B. Graves, Vice-Chair

- New applications of plasma surface processing
- Environmental engineering using plasma technology
- Real-time, on-line plasma diagnostics which can be made robust for industrial application
- Plasma-surface interaction mechanisms governing HDP etching of SiO_2
- Data needs (modeller's needs for experimental data and input parameters; industry and experimentalist's needs for modelling)
- LTE/PLTE modelling concepts (Saha equation formulation when Te not = Ti, energy balance)
- True 3-D modelling
- Status quo and perspectives - technical and fundamental - of beam experiments for simulation of plasma surface interaction
- Particles in plasmas (nucleation and growth, particle surface engineering)
- Physics of plasma display panels (PDP) and plasma activated LCD (PALC)

POINT & LINE DEFECTS IN SEMICONDUCTORS
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JULY 12 - 17, 1998
Chris G. van de Walle, Chair
T. Kennedy, Vice-Chair

- Hydrogen Implantation In Silicon: Point Defects, Platelets, And Exfoliation
- Diffusion In Silicon; Interactions Of Point Defects With Dopants
- Point Defects And Dopant Impurities In GaN
- Extended Defects In GaN
- H_2 Molecules In Semiconductors
- Interactions Of Hydrogen With Deep Impurities In Silicon
- Defect Reactions During Processing
- Defects And Doping In Diamond
- Dislocations In Epitaxial Strained Layers
- Advances In Microscopic Techniques
- Isotopically Controlled Semiconductors
- Defect Complexes In III-V Compounds

POLYMER PHYSICS
SALVE REGINA UNIVERSITY
NEWPORT, RI
AUG. 16 - 21, 1998
Edwin L. Thomas, Chair
Tim Lodge, Vice-Chair

- Polymer Properties
- Organizing Forces In Block Copolymers
- Structure Formation In Solution
- Dynamics And Interactions In Polymer Solutions
- Branched Polymers
- Polymers In Advanced Technologies
- Electro-Optical Properties
- Polymer Crystallization
- Polymer Surfaces And Adhesion

POLYMERS (EAST)
NEW ENGLAND COLLEGE
HENNIKER, NH
JUNE 14 - 19, 1998
Virgil Percec, Chair
Mark Green & Gerhard Wegner, Co-Vice-Chairs

- Will Synthetic Methods Approach Biological Precision?
- Biological Synthetic Methods. How Far Can They Go?
- Early Versus Late Transition Metal Catalysts In Olefin Polymerizations
- Dendrimers. From Science Fiction To New Technology
- Precise Control Of Nonconventional Copolymer Microstructure By Catalysis
- Nitroxide Versus Metal Mediated Living Radical Polymerizations. Similarities And Differences
- Polymer Complexes And Bottlebrushes
- Controlled Architecture And Shape By Combinations Of Synthetic Methods And Molecular Interactions
- Scope And Limitations Of Living Radical Polymerization
- Round Table Discussion: What Industry, Academia And Government Desire From Each Other

POSTHARVEST PHYSIOLOGY
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JULY 12 - 17, 1998
Donald Grierson, Chair
Michael S. Reid, Vice-Chair

- Biochemistry And Molecular Biology Of Ripening
- Flavour, Texture And Phytonutrients In Fruits And Vegetables
- Flower Development and Senescence
- Regulation of Ripening And Senescence In Fruits, Vegetables, And Flowers
- Wounding, Chilling And Physiological Disorders
- Defence Responses And Resistance To Pathogens
- Preservation, Quality And Safety Of Fresh And Lightly Processed Products
- New Technologies and Challenges for the Developed and Developing Worlds

PROTEOGLYCANS
PROCTOR ACADEMY
ANDOVER, NH
JULY 5 - 10, 1998
Jeffrey Esko, Chair
Renato Iozzo, Vice-Chair

- Fast Breaking Developments
- Proteoglycan Structure And Assembly
- Protein-Carbohydrate Interactions
- Signaling And Cytoskeletal Interactions
- Cell Adhesion And Migration
- Microbial Adhesion And Model Organisms
- Proteoglycans In Skeletal Development
- Proteoglycans In Neurobiology
- Proteoglycans In Cardiovascular Biology
- Gene Disruptions And Pathophysiology
- Therapeutic Strategies Based On Proteoglycans And Glycosaminoglycans

PROTEOLYTIC ENZYMES & THEIR INHIBITORS
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JULY 5 - 10, 1998
Charles Craik, Chair
Wolfram Bode, Vice-Chair

- Infectious Disease - Viral, Bacterial & Parasitic
- Cell Death
- Extracellular Signaling And Degradation
- Intracellular Signaling And Degradation
- Tissue Remodeling And Cell Proliferation
- Blood Processes
- Factors That Determine Substrate And Inhibitor Recognition
- Gene Regulation By Proteolysis
- Cell Cycle Regulation And Proteolysis
- Special Lecture: Proteolysis, Yesterday, Today And Tomorrow

RADIATION CHEMISTRY
SALVE REGINA UNIVERSITY
NEWPORT, RI
JULY 5 - 10, 1998
Michael D. Sevilla, Chair
K. D. Asmus, Vice-Chair

- Radiation Chemistry of Novel Substances
- New Techniques in Understanding Radiation Processes
- Young Investigators Symposium
- Low Energy Electrons in Polar Media and Molecules
- Radiation Chemistry in Ion Beams
- The Radiation Chemistry of Solutions
- Applied Radiation Chemistry
- Radiation Damage to Biological Molecules
- Electron Transfer in Biomolecules and DNA

REPRODUCTIVE TRACT BIOLOGY
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JULY 5 - 10, 1998
Kenneth Korach, Chair

- Ovarian Responsiveness
- Developmental Influences On The Reproductive Tract
- Environmental Effects On Reproduction
- Implantation And Placental Function
- Clinical Reproductive Tract Biology
- Male Reproductive Tract Function
- Hormone Action And Responsiveness
- Reproductive Effects In Knockout Mice
- Signaling Pathways In Reproductive Tract Tissues

SALT & WATER STRESS IN PLANTS
QUEEN'S COLLEGE
OXFORD, UK
AUG. 16 - 21, 1998
J. Andrew C. Smith, Chair
Elizabeth A. Bray, Vice-Chair

- Physiological Ecology Of Stress Adaptation
- Growth Responses And Cell Water Relations
- Membrane Transport And Ionic Relations
- Regulation Of Gene Expression
- Stress-Induced Signaling Mechanisms
- Metabolic Responses To Stress
- Genetic Engineering Of Stress Tolerance

SCIENCE EDUCATION: EUROPE
QUEEN'S COLLEGE
OXFORD, UK
SEPT. 20 - 25, 1998
Louis Pignolet & Bolko Flintjer, Co-Chairs
Glenn A. Crosby & Hans Bouma, Co-Vice-Chairs

- International Perspectives On Science Education And Teacher Training
- International Perspectives On Pre-College Learning And Teaching
- New Programs And Strategies In Science Education
- Research In Teaching Methods And Learning
- The Role of Research and Evaluation in the Reform of Science Education
- Reform In Science Education In The US
- Frontier Science
- Representing Science To The Masses - Science Education In The News Media And Museums
- Multimedia And Visualization In Chemistry And Science Teaching
- Interdisciplinary Approach In Teaching Introductory Chemistry
- Demonstrations - An Alternative To Virtual Reality

SECOND MESSENGERS & PROTEIN PHOSPHORYLATION
KIMBALL UNION ACADEMY
MERIDEN, NH
JUNE 7 - 12, 1998
Joseph Beavo, Chair
Jeremy W. Thorner, Vice-Chair

- Regulation And Function Of Cyclic Nucleotides - I, II
- 2nd Messenger Regulation Of Immune Function
- Macromolecular Signaling Units
- Reversal Of Protein Phosphorylation
- Phospholipid Regulated Signaling
- Localization Of Signaling Pathways
- Protein Kinase Linked Pathways

** Please note there will also be a GRC satellite meeting on **"Cyclic Nucleotide Phosphodiesterases"** to be held in conjunction with this conference immediately following this meeting. It will be held on June 12-14 at the Colby-Sawyer College, New London, NH. Please refer to the GRC Web site for more details.

SEPARATION & PURIFICATION
COLBY-SAWYER COLLEGE
NEW LONDON, NH
AUG. 2 - 7, 1998
Michael F. Doherty, Chair

- Separation With Chemical Reaction: Membranes And Adsorption
- Crystallization Of Organic Materials
- Separation With Chemical Reaction: Distillation And Extraction
- Adsorption Materials And Processes
- Green Chemistry And Separation
- Membrane Separations - I, II
- Chiral Separations

SERUM AMYLOID A: AMYLOIDOSIS TO ATHEROSCLEROSIS (3 DAY)
NEW ENGLAND COLLEGE
HENNIKER, NH
JUNE 26 - 28, 1998
Mohamad Navab, Chair
Patricia Woo, Vice-Chair

- SAA Genes: Comparative Biology, Development And Evolution
- SAA Genes: Polymorphisms And Regulation
- SAA Function: (I) Immunological (II) Lipid Metabolism
- SAA, Inflammatory Reaction Atherogenesis
- SAA And Amyloidosis.
- Degradation And Metabolism Of SAA
- Animal Models

SOLAR RADIATION & CLIMATE (NEW)
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JUNE 14 - 19, 1998
Warren Wiscombe, Chair

- Enhanced Absorption - I, II
- Shortwave Calibration
- Broadband Measurements & Models
- Spectrally Detailed Measurements & Models - I, II
- 3D Cloud Radiation
- Cloud Remote Sensing
- Shortwave in GCMs
- Single Scattering (Ice Crystals & More)

SOLID STATE CHEMISTRY
COLBY-SAWYER COLLEGE
NEW LONDON, NH
JULY 26 - 31, 1998
Jack W. Johnson, Chair
Robert Cava, Vice-Chair

- New Routes And Improved Properties
- Materials From Solution Phase Synthesis
- New Materials / New Methods
- Emerging Applications Of Solid Oxides
- Electronic Oxides
- Structure And Bonding - Main Group Compounds
- Different Perspectives On Solid State Chemistry
- Synthesis At High Pressure
- Structure / Property Relationships In Oxides

STATISTICS IN CHEMISTRY & CHEMICAL ENGINEERING
SALVE REGINA UNIVERSITY
NEWPORT, RI
JUNE 28 - JULY 3, 1998
Sijmen de Jong, Chair
Anthony C. Atkinson, Vice-Chair

- Feedback Control for Statistical Process Control
- Interactive Data Visualization
- Experimental Designs For Chemical Kinetics Models
- Recent Applications Of Robust Methods
- Project Planning And Prioritization Under Uncertainty
- Feature Selection In Multivariate Regression
- Multi-Way Component And Regression Models In Chemistry
- Controller Performance Monitoring And Diagnosis
- Generalized Linear Regression On Sampled Signals: P-Spline Approach

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STEREOCHEMISTRY
SALVE REGINA UNIVERSITY
NEWPORT, RI
JUNE 7 - 12, 1998
Franklin Davis, Chair
Frank Fang, Vice-Chair

- Asymmetric Catalysis
- Asymmetric Synthesis of Amino Acids and Peptides
- Asymmetric Synthesis of Natural Products
- Chemoenzymatic Synthesis
- Heteroatom Mediated Enantioselective Transformations
- History and Development of Stereochemistry
- Mechanistic Aspects of Stereochemistry
- Stereochemical Aspects of Biosynthesis

SUPERCONDUCTIVITY
QUEEN'S COLLEGE
OXFORD, UK
SEPT. 6 - 11, 1998
Colin Gough & Bertram Batlogg, Co-Chairs
M. Brian Maple, Vice-Chair

- Recent Theoretical Developments
- Influence Of Pairing Symmetry On Properties
- Normal State and Pseudo-Gap
- New Materials
- Surface, Boundary and Proximity Effects

SYNAPTIC TRANSMISSION (NEW)
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
AUG. 2 - 7, 1998
Meyer Jackson, Chair
Larry Trussell, Vice-Chair

- Quantal Analysis And Miniature Synaptic Currents
- Time Course Of Synaptic Currents
- Dendritic Integration
- Transporters And Synaptic Transmission
- Calcium Dynamics And Synaptic Transmission
- Control Of Neurotransmitter Release
- Molecular Biology Of Transmitter Release
- Kinetics Of Exocytosis And Endocytosis

TETRAPYRROLES, BIOLOGY & CHEMISTRY OF
SALVE REGINA UNIVERSITY
NEWPORT, RI
JULY 12 - 17, 1998
J. Clark Lagarias & Peter M. Jordan, Co-Chairs
Paul Ortiz de Montellano, Vice-Chair

- New Developments From Young Investigators
- Enzymology Of Tetrapyrrole Biosynthesis: Structure-Function Studies
- Tetrapyrrole Chemistry

(cont. on next page)

- Tetrapyrrole - Protein Regulators Of Gene Expression
- Tetrapyrroles As Signaling Molecules
- Structure - Function Of Chlorophyll - Protein Complexes
- Structure And Mechanism Of Metallotetrapyrrole Enzymes
- Biotechnological Applications Of Tetrapyrroles
- Tetrapyrrole Metabolism And Human Diseases

THEORETICAL BIOLOGY & BIOMATHEMATICS
TILTON SCHOOL
TILTON, NH
JUNE 7 - 12, 1998
Mark Lewis & John Milton, Co-Chairs

- Modeling Visual Cortex
- Behavioral & Evolutionary Ecology
- Motor Control
- Morphogenesis
- Cytoskeleton Structure
- Plant Spatial Competition
- Controlling Physiological Systems
- Noise-Sustained Wave Phenomena
- Pattern Recognition: Faces

THEORETICAL FOUNDATIONS FOR PRODUCT DESIGN & MANUFACTURABILITY (NEW)
NEW ENGLAND COLLEGE
HENNIKER, NH
JUNE 7 - 12, 1998
George Hazelrigg & Robert Schafrik, Co-Chairs

- Current Approaches To Design And Integration Engineering
- A Theory Of Design
- Implementation Of Design Theory And Design Tools
- Issues Of Distributed Design
- Integration Engineering
- Producibility
- Management Of Dispersed Design And Manufacture Teams
- Synthesis Of Discussions Regarding Design Theory - I, II

THIN FILM MECHANICAL BEHAVIOR (NEW)
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JUNE 21 - 26, 1998
Michael Drory, Chair

- Non-Destructive Mechanical Properties Measurements
- Delamination Processes
- Deformation
- Mechanical Testing Of Films And Interfaces
- Film Stress Evolution
- Mechanical Properties Of Multilayer Structures
- Microstructure Evolution And Fracture
- Tribology And Erosion

TRIBOLOGY
HOLDERNESS SCHOOL
PLYMOUTH, NH
JUNE 28 - JULY 3, 1998
Said Jahanmir, Chair
David Rigney, Vice-Chair

- Application of Science to Engineering Practice
- Atomic / Molecular Scale Processes
- Application of AFM / STM
- Indentation and Machining
- Wear of Prosthetic Devices
- Contact Damage
- Wear Sensing and Control
- Interfacial Films and Coatings

VASCULAR CELL BIOLOGY
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JUNE 28 - JULY 3, 1998
Denisa Wagner & Mark Majesky, Co-Chairs

- Vascular Development
- Angiogenesis
- Vascular Cell Death And Remodeling
- Receptors And Cytokines
- Leukocyte - Endothelial Interactions
- Cell:Cell And Cell:Matrix Adhesion
- Proteases, Signaling
- Genetic Approaches

VIBRATIONAL SPECTROSCOPY & MOLECULAR DYNAMICS
PLYMOUTH STATE COLLEGE
PLYMOUTH, NH
JULY 26 - 31, 1998
Bruce Hudson & Alex Harris, Co-Chairs
Edwin Heilweil, Vice-Chair

- Coherent Vibrational Spectroscopy & Control
- Time-Resolved Vibrational Spectroscopy
- Near Field Surface IR Spectroscopy
- Inelastic Neutron Scattering Spectroscopy
- Quantum Chemistry In Vibrational Spectroscopy
- Vibrational Spectroscopy At Surfaces
- Applications Of Vibrational Spectroscopy

WATER & AQUEOUS SOLUTIONS
HOLDERNESS SCHOOL
PLYMOUTH, NH
AUG. 2 - 7, 1998
H. Eugene Stanley, Chair
Marie Claire Bellissent-Funel & Jose Teixeira, Co-Vice Chairs

- Pure Water: Hydrogen Bonds Structure & Dynamics
- Wetting, Clusters, And Nanodroplets
- Strange Properties Of Pure Water
- Water Under Extreme Conditions
- Water Perturbed By: Ions, Apolar Solutes, Polar Solutes, Clathrates
- Solvation Dynamics & Reaction Dynamics In Water
- Water Perturbed By Macromolecules
- Water In Molecular Recognition: Hydration Forces
- Effect Of Water Research On Other Fields: Geochemistry, Geophysics, Glaciology, Astrophysics

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- **Professor Daniel Chemla** (University of California, Berkeley) - ***Electronic Processes in Organic Materials***
- **Professor Alice Gast** (Stanford University) - ***Colloidal, Macromolecular, and Polyelectrolyte Solutions***
- **Professor Lily Jan** (University of California, San Francisco) - ***Cardiac Regulatory Mechanisms***

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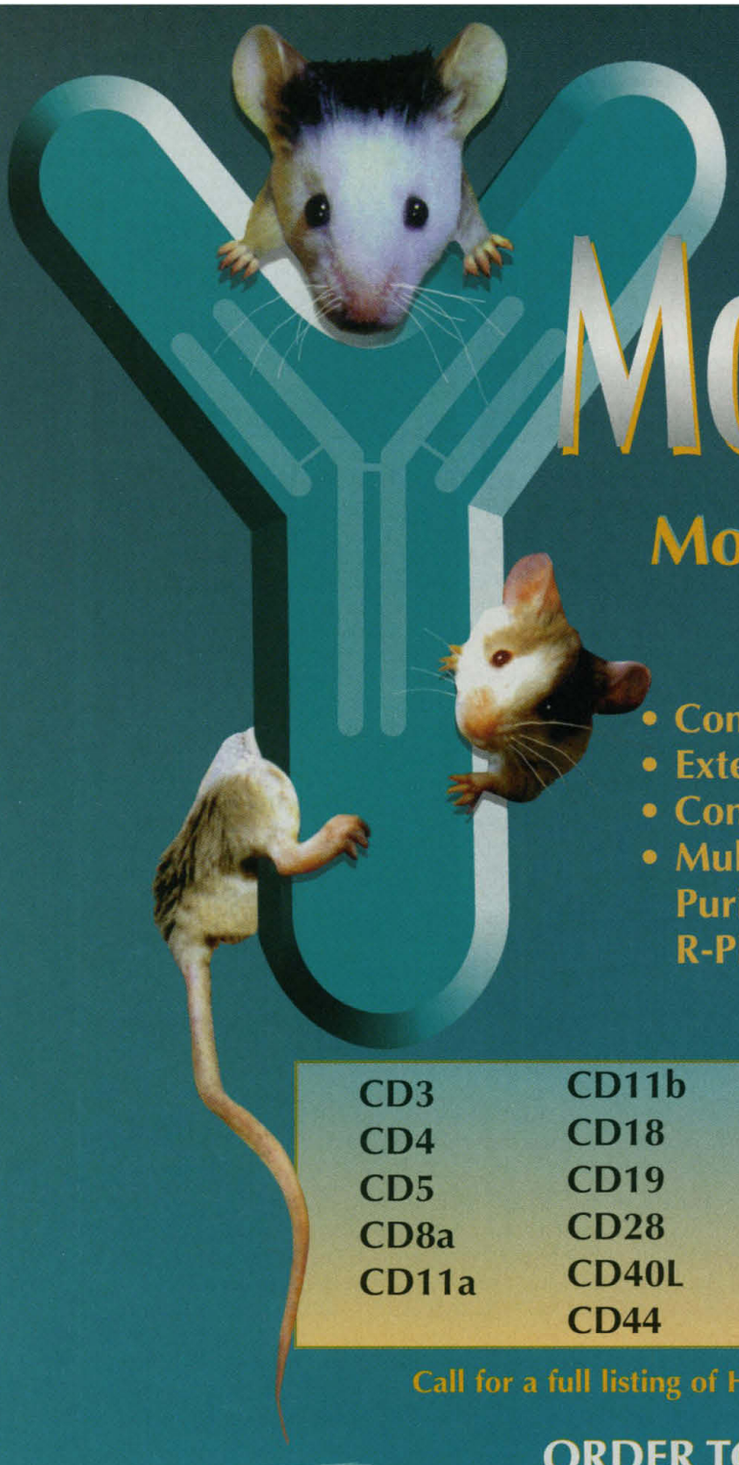

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