

Gordon Research Conferences

ALEXANDER M. CRUICKSHANK

The Gordon Research Conferences for the summer of 1988 will be held in New Hampshire and Rhode Island.

Requests for applications to the Conferences, or for additional information, should be addressed to: Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, Gordon Research Center, University of Rhode Island, Kingston, Rhode Island 02881-0801. Telephone: 401-783-4011 or 401-783-3372.

Mail for the office of the Director from 13 June to 26 August 1988 should be addressed to Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, Colby-Sawyer College, New London, New Hampshire 03257.

Fixed Conference Fees—1988

New Hampshire	
Conferee (double occupancy)	\$310
Nonresident conferee (meals, no room)	270
Guest (room, meals)	220
Rhode Island	
Conferee (double occupancy with bath)	\$325
Nonresident conferee (meals, no room)	270
Guest (room with bath, meals)	235

Science of Adhesion

New Hampton School

J. P. Wightman, chairman; R. A. Pike, vice chairman

15 August

P. M. Hergenrother, "Recent advances in high performance organic adhesives."

J. D. Rasmussen, "Reactive polymers derived from alkenyl azlactones."

R. P. Wool, "Structure and strength of polymer interfaces."

16 August

R. A. Dickie, "Adhesive bonding of zinc-coated steels: Durability and interfacial chemistry."

W. Brockmann, "Interactions in the boundary zone between metals and polymers."

G. Hadzioannou, "Structural properties of thin polymer liquids evaluated with the atomic frictional force microscope and the dynamic surface force apparatus."

The author, director of the Gordon Research Conferences, is professor emeritus of chemistry, University of Rhode Island, Kingston 02881-0801.

17 August

H. F. Brinson, "Durability predictions of adhesively bonded structures."

W. G. Knauss, "The role of nonlinear mechanics in adhesion."

W. F. Ranson, "Computer vision applications in non-linear strain measurements of adhesive bonds."

18 August

R. E. Baier, "Control of bioadhesive interactions through substratum preparation."

F. Grinnell, "Fibronectin—a biological adhesive useful in wound repair."

J. T. Dickinson, "Fracto-emission: The physical consequences of becoming unglued."

19 August

L. T. Drzal, "Interfaces, adhesion and composite materials."

D. M. Mattox, "Adhesion aspects of atomistically deposited films from the vapor phase."

Analytical Chemistry

New Hampton School

W. R. Heineman, chairman; I. W. Levin, vice chairman

8 August

F. E. Regnier, "Chromatographic immunological analysis."

G. S. Wilson, "Fundamental studies of immunosorbents."

B. L. Karger, "High Performance capillary electrophoresis."

J. G. Dorsey, "Studies in retention mechanisms of reversed phase liquid chromatography."

9 August

T. Kuwana, "Detectors for the high sensitivity LC analysis of neurogenic amines and peptides."

P. T. Kissinger, "In vivo monitoring with microdialysis sampling probes coupled to liquid chromatography."

D. C. Johnson, "Pulsed amperometric/pulsed coulometric detection at noble metals for HPLC."

H. B. Mark, Jr., "Samplers and detectors for non-electroactive anions based on conducting polymer electrodes."

10 August

B. J. Bulkin, "Accuracy and interlaboratory variation in trace analysis."

M. V. Koch, "Challenges in process analytical chemistry."

R. G. Cooks, "Ion traps and ion/surface collisions: *Quo Vadis* mass spectrometry?"

C. Fenselau, "Microorganism analysis by desorption mass spectrometry."

11 August

R. Ernst, "The potential of two-dimensional NMR for the determination

of molecular structure and dynamics."

C. R. Dybowski, "Chemical analysis at surfaces by NMR spectroscopy."

Open session.

12 August

J. A. Caruso, "Argon and helium plasmas as sources for plasma mass spectrometry: applications to speciation."

T. C. Rains, "Improved precision and accuracy in analyses by electrothermal atomic absorption spectrometry."

Animal Cells and Viruses

Tilton School

F. W. Alt and T. Hunter, co-chairmen

20 June

T. Roberts, "Tyrosine phosphorylation and S. T."

R. Williams, "PDGF receptor."

R. Treisman, "c-fos and transcription."

A. Helenius, "Glycoprotein synthesis."

M. Sheetz, "Microtubules and cell motility."

E. Rodriguez-Boulant, "Cell polarity."

21 June

P. Sharp, "Transcription factors."

N. Heintz, "Cell cycle gene expression."

R. Tjian, "Transcription factors."

H. Varmus, "Translational control."

W. Keller, "RNA processing."

22 June

M. Botchan, "BPV replication."

R. Laskey, "Nuclear formation."

A. Spradling, "Transcription and replication."

B. Garrard, "MAR sequences."

D. Forbes, "Nuclear transport."

B. Earnshaw, "Centromeres."

23 June

D. Beach, "S. Pombe genetics."

R. Bravo, "Growth factor inducible genes."

R. Schimke, "Amplification and replication."

D. Baltimore, "Viruses and immune cell functions."

W. Green, "IL-2 receptors and HTLV-I."

24 June

R. Kucherlapati, "Reverse genetics."

F. W. Alt, "Ig recombination."

J. Wilson, "Homologous and illegitimate recombination."

Atomic and Molecular Interactions

Plymouth State College (S)

F. F. Crim, chairman; M. H. Alexander, vice chairman

1 August

P. Houston, "Correlations in photofragment distributions."

M. Shapiro, "Photodissociation and reactions with coherent light."

H. Reisler, "Photodissociation dynamics at the correlation level: Scalar and vector properties."

R. Dixon, "The influence of internal excitation on predissociation dynamics."

P. Andresen, "State to state aspects in the photodissociation of small molecules."

2 August

S. Anderson, "Experimental and ab initio studies of pure and alloy metal cluster ions."

D. Clary, "Dissociation dynamics in polyatomic complexes and in negative ions."

M. Lester, "Half-collision scattering in van der Waals complexes."

R. Pack, "Quantum reactive scattering in 3D using hyperspherical (APH) coordinates."

G. Schatz, "Quantum reactive scattering studies of heavy and light-heavy reactions."

IMPORTANT—Please Note—New Regulation on Registration

1) Registration will be accepted by the office of the Director if postmarked 3 weeks prior to the Conference after which all registration will be on-site. The Board of Trustees has voted unanimously to implement an on-site registration fee which will be fifty dollars (\$50) higher than the standard registration fee (\$360 double occupancy, \$320 nonresident, \$270 guests in New Hampshire and \$375 double occupancy, \$320 nonresident, \$285 guests in Newport). This on-site fee will apply to all conferees including speakers, discussion leaders, and guests.

2) Full fixed fee charged regardless of time conferee attends conference. Please note details of fees.

3) Fixed fees cannot be prorated or reduced for anyone (speakers, discussion leaders, and conferees).

4) Children must be at least 12 years of age to have accommodations at any host site.

5) Nonresident conferees are expected to eat all meals in the Conference Dining Room and therefore the fee for nonresidents includes the full meal charge.

6) Off-site accommodations (hotel, motel, and so forth) near the host schools are available; however, early reservations are recommended. The office will send on request a list of outside housing for your information and use.

3 August

J. Werner, "Ab initio studies of collision induced energy-transfer in electronically excited states."

G. Ezra, "Dynamics of overtone excited states."

J. Valentini, "Dynamics as a probe of the potential energy surface: spectroscopy of the transition state and beyond."

R. Bernstein, "Recent experiments with oriented molecule beams."

S. Leone, "Alignment effects in electronic energy transfer and molecular collisions."

4 August

H. Rabitz, "Making molecules dance: Optimal control of molecular motion."

P. Brummer, "Eigenstates in natural and controlled intramolecular dynamics."

W. Warren, "Effects of pulse shaping in ultrafast laser spectroscopy."

D. Buckingham, "Attraction and repulsion: intermolecular forces—ancient and modern."

5 August

H. Metiu, "Quantum theory of thermal rates: Hydrogen diffusion on surfaces."

S. Bernasek, "Inelastic and reactive interactions of small molecules on iron surfaces."

E. Stechel, "Rotational dynamics in electronically stimulated desorption of NO from Pt(111)."

Bacterial Cell Surfaces

Plymouth State College (N)

L. L. Randall, chairman; V. Braun, vice chairman

4 July

J. Hacker, "The role of virulence factors in infection."

T. Meyer, "Virulence mechanisms of pathogenic *Neisseria*."

W. Dowhan, "Regulation of *Escherichia coli* phospholipid composition through genetic manipulation."

I. Shibuya, "Interrelationships among phospholipid species."

5 July

G. Boulnois, "Genetic studies of *Escherichia coli* capsular polysaccharide synthesis, export and surface assembly."

J. Knox, "Structure of penicillin-binding protein in complex with its ligand."

E. Kennedy, "Biogenesis, biosynthesis and function of membrane-derived oligosaccharides."

D. Diedrich, "Bdellovibrio, a periplasmic parasite."

S. Long, "Genetic analysis of *Rhizobium*-plant interactions."

6 July

H. R. Kaback, "Use of site-directed mutagenesis to study lactose transport."

P. Maloney, "Identification and reconstitution of anion exchange mechanisms in bacteria."

H. Nikaido, "Molecular mechanism for the maltose-transport system."

F. Ausubel, "Homology among sensors of environmental stimuli."

M. Inouye, "Mechanism of transmembrane signaling in osmoregulation."

7 July

S. Mizushima, "Studies of protein export in vitro."

K. Ito, "The role of the SecY protein in bacterial protein export."

P. Bassford, Jr., "An anti-folding factor promotes export of maltose-binding protein in *Escherichia coli*."

J. Beckwith, "Genetics of membrane protein topology."

S. Lindow, "Molecular determinants of bacterial ice nucleation."

8 July

T. Silhavy, "The characterization of suppressors of signal sequence mutations."

L. Gierasch, "Biophysical studies of signal peptides."

A. Kuhn, "Genetic studies of the membrane assembly of the M13 procoat protein."

Basement Membranes

Plymouth State College (S)

P. Bornstein, chairman; J. Fessler, vice chairman

20 June

Y. Yamada, "Function and expression of laminin."

F. Ramirez, "Abnormal splicing in collagen genes."

A. Chung, "Entactin and related basement membrane proteins."

J. Hassell, "Tailoring of basement membrane proteoglycan."

J. Fessler, "Structural proteins in *Drosophila*."

21 June

P. Bornstein, "Regulation of expression of type I collagen genes."

P. Burbelo, "Regulation of expression of the $\alpha 1(IV)$ collagen gene."

S. Bourgeois, "Regulation of fibronectin biosynthesis."

S. Adams, "Posttranscriptional control of type I collagen gene expression."

G. Sonenshein, "Oncogenes, proliferation and collagen gene expression."

22 June

C. Damsky, "Integrin adhesion receptors and cell invasion."

M. Pierschbacher, "Arg-Gly-Asp dependent mechanisms of cell recognition."

J. Massague, "Transforming growth factor- β and the regulation of cell adhesion."

D. Phillips, "Structure-function relationships of adhesive protein receptors."

M. Hemler, "Structure and function of the VLA family of adhesion receptors."

23 June

A. Roberts, "Transforming growth factor- β : Major role in regulation of extracellular matrix."

K. von der Mark, "Cell-matrix interactions in development."

J. Heath, "Regulation of metallopro-

teinase and TIMP gene expression by growth factors."

R. Jaenisch, "Recessive and dominant lethal mutations in transgenic mice."

24 June

H. Kleinman, "Active sites on laminin and cellular receptors."

J. Sanes, "Extracellular matrix of the neuromuscular junction."

B. Cunningham, "Cell adhesion molecules in development."

Bioanalytical Sensors

Colby-Sawyer College (N)

R. A. Durst, chairman; T. Kuwana, vice chairman

13 June

J. C. Weaver, "Basic issues in biosensing."

M. Thompson, "Molecular recognition to transduction problems in biosensor development."

W. J. Albery, "Novel enzyme electrodes."

M. R. Neuman, "Biomedical sensors—present and future."

M. Aizawa, "Immunosensors."

14 June

E. Pungor, "Potassium electrode measurements in and on the brain."

M. Meyerhoff, "Biosensing with polymeric membrane electrodes."

R. Kobos, "Potentiometric biosensing systems."

A. Brajter-Toth, "Amperometric detection of biomolecules."

Y. Degani, "Sensors based on microengineered redox enzymes."

15 June

Y. Umezawa, "Ion-channel sensors."

E.-K. Michaelis, "Glutamate receptor—ion channel—based biosensor."

F. S. Ligler, "Integration of synthetic membranes containing ion channels into biosensors."

G. J. Bastiaans, "Surface acoustic wave biosensors."

J. Janata, "Chemical and magnetic field resonance modulation of membranes."

16 June

W. R. Seitz, "New indicator phases for optical sensors."

M. A. Arnold, "Development of biocatalyst-based fiber optic biosensing probes."

B. Bluestein, "Optical evanescent wave immunosensors for the determination of clinical analytes."

L. B. Wingard, Jr., "Neuroreceptor based biosensors."

17 June

R. M. Wightman, "In vivo determination of neurotransmitters."

A. L. Plant, "Liposome-enhanced flow injection immunoanalysis."

Bioelectrochemistry

Plymouth State College (N)

B. F. Siskin, chairman; M. Swicord, vice chairman

15 August

M. Blank, "Linking electrical stimulation with molecular processes."

L. Liebovich, "Fractal analysis of ion channel kinetics."

E. Neumann, "Electric fields and DNA-membrane complexes."

A. Chiabrera, "Magnetic field component in EM studies."

A. Liboff, "Helitetrahedral conduction in aqueous ion channels."

16 August

J. Weaver, "Detection limit issues for cells."

C. Polk, "Dielectric properties influence magnetic field responses."

C. Blackman, "Examination of amplitude and frequency windows."

A. Pilla, "Electrochemical transduction of electromagnetic bioeffects."

C. Durney, "AC-DC magnetic field biological effects."

17 August

A. Boynton, "Mechanism of regulation of mitosis."

C. Byus, "Low energy electromagnetic field regulation of ODC."

R. Kornstein, "Second messenger transduction of capacitively-coupled electric fields."

D. Bingman, "Electrophysiology measurements of osteoblast membranes."

R. Pethig, "Dielectrics of cell membranes."

18 August

M. M. Poo, "Nerve-muscle interactions during synaptogenesis."

A. Sheppard, "Neuronal pacemaker responses to electric/EM fields."

M. Kanje, "EM field stimulation of nerve regeneration."

M. Schwartz, "CNS regeneration/biological effects of low energy laser."

C. Tator, "Electrical stimulation of spinal cord injury."

19 August

R. Goodman, "Specific gene expression is altered by EM fields."

J. Spadaro, "Bone stimulation in animal models."

A. Marino, "Bioelectric mechanism: Parsimony and priority."

Bioengineering and Orthopedic Sciences

Proctor Academy

H. Reddi, chairman; A. Grodzinsky, vice chairman

15 August

J. Sasse, "Cartilage-derived growth factors."

C.-H. Heldin, "Platelet-derived growth factor."

M. Bolander, "Growth factors and fracture repair."

R. Gelbermann, "Biological aspects."

S. Woo, "Bioengineering aspects."

16 August

C. Handley, "Insulin-like growth factors and cartilage."

D. Eyre, "Collagen expression in repair."

J. Urban, J. Kimura, "Cartilage."
J. Buckwalter, "Cartilage repair."
M. Aydelotte, P. Denya, "In vitro aspects."

17 August

E. Vurio, D. Ashhurst, "Collagen phenotypes."
S. Cowin, "Bioengineering aspects of remodeling."
T. Hayes, to be announced.
P. Kelly, T. Einhorn, to be announced.

18 August

T. K. Sampath, "Osteogenin."
S. Seyedin, "Transforming growth factors."
T. Miller, "Collagenous delivery systems."
C. Huggins, "Epithelial osteogenesis."
M. Urist, "Discovery of bone morphogenic protein."

19 August

S. Weintraub, "Bone marrow stromal cells and bone formation."
M. Nimni, "Bone marrow and bone formation."
I. Bab, "Growth factors in regenerating marrow."

Biopolymers

Holderness School

P. B. Moore and P. J. Hagerman, co-chairmen

27 June

O. Uhlenbeck, "RNA self-cleavage reactions."
K. Hall, "Combined NMR and biochemical approaches to studying large RNAs."
D. Turner, "Factors affecting nucleic acid conformation and function."
D. Draper, "Unusual RNA structures recognized by ribosomal proteins."
H. Noller, "A model for the 3-dimensional path of 16S ribosomal RNA."

28 June

S. Altman, "Formation of the RNase P holoenzyme: Reactions with novel substrates."
J. Latham, "Mechanistic and structural studies of oligonucleotide interactions with the *Tetrahymena* ribozyme."
R. Giege, "Conformational features in tRNAs and relations with function."
B. Zimm, "Mechanism of DNA electrophoresis."
W. Baaze, "Orientation and transport of DNA in gels."

29 June

T. Record, "Understanding stability and specificity of protein-DNA interactions."
L. Jen-Jacobsen, "A mechanism for fail-safe DNA sequence discrimination."
S. Benkovic, "On the fidelity of DNA polymerase."
R. Baldwin, "Peptide helix formation and the pathway of protein folding."
D. Goldenberg, "Mutations that alter the energetics of the BPTI folding pathway."

H. Roeder, "NMR and hydrogen exchange studies of protein folding."

30 June

B. Honig, "Electrostatic interactions in proteins and nucleic acids."
J. Skolnik, "Monte Carlo simulations of globular protein folding."
A. Brunger, "Applications of simulated annealing to x-ray crystallography and NMR spectroscopy."
P. Von Hippel, "Mechanism of RNA transcript elongation and termination."

1 July

G. Rose, "Helices in proteins."
D. Ringe, "New enzymes from old."
J. Haidu, "Fast x-ray crystallography in the study of biological processes."

Cancer

Salve Regina College

S. R. Wolman, chairman; N. Fausto, vice chairman
Genetic Determinant of Cancer: Etiology, Development and Phenotype

15 August

J. Little, "Cell transformation and mutation."
L. Samson, "The cellular response to DNA-alkylation damage."
S. Wolff, "Repair of low-level radiation damage in human lymphocytes."
N. Colburn, "Genetic susceptibility to tumor promotion."
M. Gottesman, "Multidrug resistance in human cancer."

16 August

G. Klein, "Cancer genes and cancer suppressor genes (emerogenes)."
Discussants: P. Duesberg, D. Tarin.
W. Cavanee, "Gene deletion in childhood and adult tumors."
E. Solomon, "Genetics of colorectal cancer."

17 August

W. Muller, "Breast cancer development in transgenic mice."
T. Waldmann, "Differentiation-specific T-cell receptor gene rearrangements in lymphomas."
M. Noble, "Development and neoplasia in the central nervous system."
S. Schor, "Systemic mesenchymal disorder in breast cancer."
Z. Werb, "Extracellular matrix-cell interactions and the regulation of matrix remodelling and cell growth."

18 August

S. Broyde, "Molecular views of carcinogen-DNA adducts."
M. Pincus, "Protein structure, oncogenes, and oncogenesis."
R. Rein, "Molecular basis of mutagenesis and carcinogenesis."
M. McGrath, "AIDS-associated lymphoma: A multifactorial disease process."
R. Biggar, "Epidemiology of tumor development in AIDS."

19 August

D. Wallace, "Mitochondrial genes."
H. Zarbl, "Genetic analysis of transformation-effector genes."

B. R. Brinkley, "Centromere proteins and chromosome segregation in normal and neoplastic cells."

Catalysis

Salve Regina College

M. J. Kelley, chairman; L. D. Schmidt, vice chairman

1 August

G. Messing, "Novel high surface area oxides and novel processes for making them."
M. Davis, "Molecular sieves with rings containing more than 12 T atoms."
I. Wachs, "Molecular design of surface metal oxide catalysts."

2 August

M. McDaniel, "Supported chromium catalysis of ethylene polymerization."
W. Farneth, "Oxide surface catalysis in binder removal for ceramics processing."
R. Chianelli, M. Daage, "Fundamental studies of transition metal sulfide catalysts."

3 August

D. Smith, "Atomic resolution transmission electron microscopy of supported catalysts."
J. Behm, "Scanning tunneling microscopy of adsorbed species."
A. Klibanov, "Enzymatic catalysis in organic solvents."

4 August

D. Koningsberger, "Extended x-ray absorption fine structure studies of supported metal catalysts."
J. Fraissard, "Applications of ^{129}Xe NMR of adsorbed Xe for the characterization of supported catalysts."
A. Kaldor, "Naked clusters."

5 August

R. Finke, "Polyoxoanion-supported, atomically dispersed metals: Synthesis, characterization and catalysis."
D. Lynch, "Characterization of heterogeneous catalytic reaction systems using steady-state and dynamic techniques."

Catecholamines

Proctor Academy

D. C. Klein, chairman; C. O. Rutledge, vice chairman

25 July

D. Bonar, "Catecholamine regulation of oyster morphogenesis."
M. Caron, "Evolution of adrenergic receptors."
C. Venter, "Molecular biology and structure of adrenergic receptors."
B. Kobilka, "Structure and function of adrenergic receptors."
C. Fraser, "Site-directed mutagenesis of adrenergic receptors."

26 July

J. Chandler, "Alpha-1 adrenergic receptor subtypes."
J. A. Bevan, "Affinity variation in alpha-1 adrenoceptors."
L. Limbird, "Alpha-2 adrenergic actions."

D. C. Klein, "Alpha-1 adrenergic 'AND' gate in the pineal gland."
P. Magistretti, "Alpha-1 adrenergic-VIP interactions in the CNS."

27 July

E. I. Ginns, "Synthesis: Molecular biology of human tyrosine hydroxylase."
I. Ackworth, "Substrate-dependent dopamine release: Microdialysis studies."
J. Fernstrom, "Modulation of precursor-product relationships."
G. Johnson, "G-proteins: Analysis of functional domains."
C. Malbon, "G-protein receptors: Turning them on and off."

28 July

B. Jacobs, "Single unit recordings in free running animals."
J. Commission, "Functional significance of in vivo measurements of catecholamines."
R. Wise, "Role of dopamine circuits in addiction."
E. Rojas, "Temporal relationships of events involved in secretion."
M. Youdim, "Development of monoamine oxidase A and B from neural crest."

29 July

S. Markey, "Nigro striatal cell death in MPTP induced parkinsonism."
J. F. Reinhard, "Mechanism of action of MPP⁺."
B. Hoffer, "Catecholamine containing transplants and parkinsonism."

Solid State Studies in Ceramics

Kimball Union Academy

D. B. Marshall, chairman; U. Chowdhry, vice chairman

15 August

A. G. Evans, "Principles of interface fracture."
R. Cannon, "Crack growth along ceramic-metal interfaces."
L. R. F. Rose, "Mechanics and micro-mechanics of reinforcements."
M. Doyle, "Toughening of rigid polymers by elastomeric inclusions."

16 August

J. Brennan, "Interface studies in fiber reinforced ceramics."
G. McClelland, "The atomic dynamics of friction."
R. Raj, "Bonding at metal-ceramic interfaces."
R. J. Young, "Micromechanics of fiber and composite deformation."

17 August

M. Ruhle, "Structure and chemistry of metal-ceramic interfaces."
N. Claussen, "Fracture of ceramic composites with complex microstructures."
R. Steinbrech, "R-curves in zirconia ceramics."
B. R. Lawn, "R-curves in non-transforming ceramics."

18 August

S. Suresh, "Quasi-static and dynamic fracture of ceramics."

E. Fuller, "Crack-interface interactions in model systems."

19 August

I.-W. Chen, "Transformation toughening."

M. V. Swain, "Fatigue of Mg-PSZ."

Chemotherapy of Clinical and Experimental Cancer

Colby-Sawyer College (S)

T. R. Tritton, chairman; K. Tew, vice chairman

18 July

W. Plunkett, "Nucleoside analogs."

G. Grindey, "Difluorodeoxycytidine."

R. Jackson, "PRPP synthetase inhibitors."

Y. Pommier, "Topoisomerase inhibitors."

W. Ross, "Drug resistance and topoisomerase."

19 July

K. Kennedy, "pH and chemotherapy."

H. Dvorak, "Tumors—wounds that don't heal."

M. Bissell, "Extracellular matrix."

E. Modest, "Ether lipids."

C. P. Burns, "Lipid modification."

20 July

T. Phillips, "Radio/chemotherapy in head and neck cancer."

T. LeChevalier, "Radio/chemotherapy combinations."

A. Begg, "Radiation cisplatin interactions."

W. Beck, "Atypical multidrug resistance."

M. Gottesman, "Applications of multidrug resistance."

21 July

G. Foulkes, "Oncogene targets."

N. Berger, "Cell death."

W. Hait, "Ca²⁺ messenger systems."

T. Connors, "Cancer chemotherapy: The future."

22 July

A. Grollman, "Bleomycin selectivity."

L. Erickson, "Oncogene specificity."

P. Miller, "Antisense oligonucleotides."

Coatings and Films

Proctor Academy

F. L. Floyd, Chairman; G. P. Bierwagen, vice chairman

Understanding Complex Systems

1 August

A. Balazs, "Computer simulation of self-assembling polymers."

P. Kuschner, "Phase behavior of water-borne polymers."

F. Jones, "Lipid crystalline polymers."

S. Downing, "Development and application of low Tg NAD microgels."

2 August

R. Taft, "Principles and applications of solvatochromic relationships."

J. Brady, "Relationship between

polymer and micellar solubility and soln. energetics."

M. Abraham, "Use of solvatochromic parameters to study sorption of vapors by liquids and coatings."

F. Karasz, "Enhancement of polymer miscibility via copolymerization."

3 August

P. Taylor, "Predicting durability via thermal wave imaging."

K. Gillen, "Monitoring of aging via modulus/depth profiling."

T. F. Tadros, "Mechanism and behavior of electrodynamic spraying of liquids."

M. Pourbaix, "Prediction of corrosion of metals via thermodynamic phase diagrams."

4 August

R. K. Sathir, "Deposition and characterization of plasma films."

J. Martin, "Predicting service life of coating systems."

J. Gillham, "Recent advances in formation and properties of thermoset polymers."

J. Heller, "Summary and update on Shroud of Turin study."

5 August

K. Tsutsui, "Amphoteric, pigment-dispersing polymers."

K. Sehgal, "Adhesion to weathered surfaces."

D. Perera, "Effect of internal stress on coatings performance."

Computational Chemistry

Plymouth State College (S)

D. B. Boyd and P. Kollman, co-chairmen

4 July

A. T. Brunger, "Computational tools for structural biology."

T. Stouch, "Molecular dynamics simulations of simple lipid systems."

W. F. van Gunsteren, "On comparing computer simulations of macromolecules with experimental data."

Poster session.

5 July

M. J. E. Sternberg, "Computer modeling of the effects of site-directed mutagenesis."

N. Go, "Simulation of conformational dynamics of proteins: Harmonic and anharmonic aspects."

S. J. Wodak, "Contributions from electronic polarizability to electrostatic interactions in proteins."

K. Muller, "Combined use of computer modeling and structural data bases in chemical research."

R. S. Pearlman, "Rapid generation of high quality approximate 3D molecular structures."

6 July

T. Liljefors, "Molecular mechanics in structure-activity studies."

W. C. Still, "Modeling of molecular complexes."

T. A. Halgren, "On the representation of angle bending potentials in empirical force fields."

Poster session.

7 July

I. D. Kuntz, "Use of distance geometry for structural analysis."

J. M. Blaney, "Distance geometry approach to ligand-macromolecule docking."

J. S. Dixon, "Ligand design methodology."

M. J. S. Dewar, "Use of quantum mechanical models for studies of reaction mechanisms."

J. A. Pople, "General theory of molecular energies."

8 July

M. C. Zerner, "Quantum chemical studies on the structure and spectroscopy of large transition metal systems."

J. W. Lauher, "Molecular modeling in organometallic chemistry."

J. K. Burdett, "Theoretical studies of solids."

Condensed Matter Physics

Brewster Academy

R. Westervelt and M. Cross, co-chairmen

Collective Dynamics of Nonequilibrium Systems

20 June

D. Cannell, "Initial stages of pattern formation in Rayleigh-Benard convection."

V. Steinberg, "Pattern formation in binary mixture convection near threshold."

V. Croquette, "Convection in liquid crystals."

S. Ciliberto, "Spatial-temporal intermittency in Rayleigh-Bernard convection."

S. Teitsworth, "Dynamics of high-field domains in Ge."

21 June

J. Denker, "Automatic learning, rule extraction and generalization in layered networks."

J. Bower, "Dynamics of real and simulated neural networks."

D. Fisher, "Nonlinear dynamics in systems with many degrees of freedom."

I. Proccacia, "Universalities in the chaotic regime of dynamical systems."

22 June

S. Bhattacharyya, "Noise and mode locking in sliding charge-density-wave conductors."

S. Coppersmith, "Marginal stability and memory in charge-density-wave systems."

P. Bak, "Self-organized critical phenomena."

C. Lobb, "Josephson junction arrays."

C. Jayaprakash, "Coherence and chaos in many-body dynamical systems."

23 June

K. Kaneko, "Pattern dynamics in spatio-temporal chaos."

A. Bishop, "Pattern formation and chaos in systems of driven damped nonlinear oscillators and partial differential equations."

J. Gollub, "Nonlinear dynamics of interfacial waves."

W. Horsthemke, "Spatial pattern formation in nonequilibrium chemical systems."

24 June

D. Bensimon, "Nonadiabatic effects in convection."

J. Bechhoefer, "Directional solidification of liquid crystals."

A. Karma, "Modeling complexity in crystal growth."

Corrosion

Colby-Sawyer College (N)

D. J. Duquette, chairman; H. Grabke, vice chairman

18 July

F. Mansfield, "Materials damage due to acid rain and fog."

M. Stratmann, "The corrosion properties of metals covered with very thin electrolyte layers."

H.-H. Strehlow, "The study of passive layers on Fe, Cr, Ni, and its alloys with electrochemical and surface analytical techniques."

J. Lumsden, "What are UHV spectroscopies really telling us about passive films?"

19 July

H. Boehni, "The significance of metastable pitting for localized corrosion."

U. Stimming, "Photo-electrochemical characterization and imaging of passive metal surfaces."

P. Moran, "Passivity in non-aqueous and mixed solvents."

H. Pickering, R. Iyer, "Modeling of hydrogen permeation in corrosion processes."

20 July

W. Moshier, "The influence of alloying additions on the passivity of sputter-deposited aluminum alloys."

E. MacAfferty, P. Natasian, G. Hubler, "Pitting behavior of ion beam modified aluminum."

R. Jones, "Recent advances in the understanding of grain boundary chemistry on IGSCC."

H. Vehoff, "The nucleation and growth of stress corrosion and corrosion fatigue cracks in bicrystals."

21 July

C. Laird, "Corrosion fatigue of model materials under anodic conditions."

R. Gangloff, "Chemical and micromechanical processes for crack tip damage in corrosion fatigue: From mechanisms to life prediction."

M. Baskes, "Embedded atom calculations of hydrogen effects in metals."

H. Birnbaum, "Hydrogen effects on dislocation behavior."

22 July

B. Little, "Electrochemical techniques for evaluation of microbiological corrosion."

H. Videla, "A bioelectrochemical interpretation of the role of microorganisms in corrosion."

Crystal Growth

Colby-Sawyer College (N)

W. R. Wilcox, chairman; M. Brown, vice chairman

25 July

J. F. Cooper, "Rapid crystal growth from solution."
J. P. van der Eerden, "Solution crystal growth mechanisms."
P. Gornert, "Kinetics and mechanisms of flux crystal growth."
M. Larson, "Properties of supersaturated solutions."
H. Z. Cummins, "Light scattering from growing crystals."

26 July

P. R. Pukite, "MBE on vicinal surfaces."
A. Madhukar, "MBE growth of III-Vs."
D. D. Vvedensky, "Growth and relaxation in MBE."
M. Suzuki, "Mechanisms of MOCVD GaAs."
V. M. Donnelly, "Mechanisms of photo CVD of III-V compound semiconductors."

27 July

S. C. Palmateer, "Design of a novel chimney reactor for the growth of InP and related alloys."
W. L. Holstein, "CVD reactor modeling."
K. F. Jensen, "Modeling of MOCVD reactors."
M. P. Scott, "In situ observation of defect formation using synchrotron x-ray topography."
F. Weinberg, "Thermal stress in crystal growth by solidification."

28 July

E. M. Monberg, "Growth and properties of III-Vs by the vertical gradient freeze technique."
P. Capper, "Growth and properties of cadmium mercury telluride using ACRT."
S. L. Lehoczky, "Solidification of alloy semiconductors."
J. J. Derby, "Heat transfer, convection and control in Czochralski growth."
G. Szabo, "Control of Czochralski growth."

29 July

H. Rodot, "Growing crystals from microgravity in space to high gravity in a centrifuge."
R. Nitsche, "Floating zone melting in space."
M. D. Radcliffe, "Fluid flow and crystallization in microgravity."

Dielectric Phenomena

Holderness School

J. M. Pochan, chairman; F. Karasz, vice chairman

25 July

M. Schlesinger, "Stretched exponential relaxations and Vogel-Fulcher behavior in disordered systems."
R. Loring, "Theory of dielectric relaxation effects in nonlinear spectroscopy."
J. Simon, "Time resolved studies of solvation-experiment and computer simulation."
Poster session.

26 July

G. Johari, "New hierarchical rheology theory to explain the origin of alpha and beta relaxations."
G. Williams, "Dielectric studies of side chain liquid crystal polymers."
K. Mauritz, "Dielectric studies of clustering phenomena in Nafion and similar systems."
D. Shriver, "Recent advances in ion conduction in doped polymeric systems."
J. Fontenella, "Relation of molecular relaxation to the conduction mechanism in ionically doped polymer systems."

27 July

P. Prasad, "Recent advances in the field of nonlinear optics."
J. Stamitoff, "Liquid crystal polymer applications to nonlinear optics."
P. Gunter, "Nonlinear optics in photorefractive crystals."
T. Furakawa, "Nonlinear relaxation phenomena in polymeric systems."
M. Zahn, "Electrooptic field mapping measurements in electron beam irradiated polymers."

28 July

K. Watson, "Electrohydrodynamic theory of liquid breakdown."
H. Yamashita, "Prebreakdown partial discharge measurements."
E. Kuhnhardt, "Electrokinetics in breakdown phenomena."
B. Cole, "Perspectives in dielectric research."

29 July

C. Purvis, "Space environment and its impact of dielectric materials."
F. Rose, "Power issues in space."
R. Samoano, "Dielectrics utilized in the space environment."

Drug Carriers in Medicine and Biology

Plymouth State College (S)

R. S. Langer, chairman; J. Weinstein, vice chairman

11 July

Gastrointestinal, nasal, pulmonary, and capillary barriers: R. S. Langer, chairman
Speakers: J. Patton, G. Amidon, B. Rippe.
Targeted liposomes and disguised colloidal carriers: J. Robinson, chairman
Speakers: V. Torchilin, S. S. Davis

12 July

Polypeptide delivery systems: oral routes, vaccines, and PEG modified systems: R. Pearlman, chairman
Speakers: M. Saffron, C. Alving, B. Freeman.
Immunotoxins and targeted systems: G. Gregoriadis, chairman
Speakers: E. Vitetta, O. Press.

13 July

Clinical studies: bioerodible polyanhydrides for brain disorders, antibodies, and liposomes: T. Chang, chairman

Speakers: H. Brem, V. Byers, G. Lopez-Berestein.

Panel: Factors influencing the successful development of drug delivery systems: G. Poste, chairman
C. Gardner, W. Good, M. Ostro, E. Tomilson, J. Longnecker, T. McKearn.

14 July

Chronobiology and non-zero-order drug delivery: J. Rosen, chairman
Speakers: M. Smolenski, W. Hrushesky, D. Tirrell.
Controlled delivery of drugs and angiogenic factors and contributed papers: R. Dedrick, chairman
Speaker: J. Folkman.

15 July

New directions in drug delivery: Novel polymers, cell delivery, and changing genotypes: M. Sefton, chairman
Speakers: J. Kohn, D. Scharp, D. Hammer.

Drug Metabolism

Holderness School

F. P. Guengerich, chairman; P. F. Hollenberg, vice chairman

18 July

C. Abell, "Molecular basis of the enzymatic differences between human liver monoamine oxidases A and B."
R. Heikkila, "Role of monoamine oxidases A and B in the bioactivation of MPTP analogs."
N. Castagnoli, Jr., "Molecular mechanisms of action of the neurotoxin MPTP."
R. Billings, "Disposition and metabolism of recombinant tissue plasminogen activator and recombinant growth hormone."
D. J. Liberato, "Studies on the analysis and metabolism of therapeutic peptides and proteins."

19 July

M. Navia, "Structural studies on the inhibition of elastase and β -lactamase."
G. R. Marshall, "Designing peptide mimetics to overcome metabolic problems."
R. N. Armstrong, "Mechanistic and structural studies of glutathione transferase."
P. D. Berk, "Role of class-specific plasma membrane binding proteins in the hepatocellular uptake of organic anions."
R. Weissiger, "Influence of plasma binding on hepatic uptake: New concepts and controversies."

20 July

J. W. Bridges, "Toxicological implications of the induction of endoplasmic reticulum enzymes."
H. C. Pitot, "The roles of chemical promoters in hepatocarcinogenesis."
P. I. Eacho, "Xenobiotic-induced peroxisome proliferation."
V. Glocklin, "Regulatory considerations in drug disposition/safety evaluation studies."
D. F. Rickert, "Use of physiologically based pharmacokinetic models to select an appropriate species for methanol bioassay."

21 July

P. Workman, "Metabolic basis for chemosensitization by anticancer drugs."
C. Myers, "Drug metabolism and resistance to anticancer drugs."
G. Powis, "Metabolism and actions of anticancer quinones."
E. Cordes, "Drug metabolism and the discovery and development of new chemical entities."

22 July

J. Henion, "Supercritical fluid chromatography/mass spectrometry for the characterization of drugs and their metabolites in biological samples."
M. Poirier, "Detection and quantitation of DNA damage with carcinogen-DNA antisera."

Elastomers

Colby-Sawyer College (N)

B. E. Eichinger, chairman; G. VerStrate, vice chairman

11 July

J. E. McGrath, "Recent investigations of living polymerizations and their applicability to multiphase copolymer synthesis."
Y. Doi, "Living coordination polymerization and synthesis of tailor-made polyolefins."
Poster presentations.
R. H. Grubbs, "Polymer synthesis through stable organometallic intermediates."
C. Cozewith, "Near monodisperse ethylene-co-propylene by direct Ziegler polymerization."

12 July

F. Boue, "Small angle neutron scattering studies of the dynamics and statics of elastomers."
S. F. Edwards, "Slip-link models of rubber elasticity."
R. Stadler, "Elastomeric hydrophilic-hydrophobic two-component polymer networks—synthesis, mechanical characterization and permeation behavior."
G. L. Wilkes, "Structure-property studies of segmented elastomers based on ionene chemistry."

13 July

R. B. Fox, "Synthetic sequence effects in semi and full interpenetrating networks."
C. C. Han, "Spinodal decomposition in binary polymer mixtures."
T. Hashimoto, "Phase transition of polymer blends—mechanism and dynamics of ordering processes."
K. Binder, "Phase separation in polymer blends: phenomenological theories and Monte Carlo simulation."

14 July

J. A. Donovan, "Fracture criteria and resistance in carbon black-filled natural rubber."
J. T. Dickinson, "Fracture-emission from polymers."
J. F. Stanton, "A view from the bridge."

15 July

M. J. M. Vergnaud, "Modeling of the

process of cure in elastomers and applications."

R. W. Layer, "Anti-ozonant protection in elastomers."

Electron Donor Acceptor Interactions

Brewster Academy

H. D. Roth, chairman; G. L. McLendon, vice chairman

8 August

G. Fleming, "Dynamics of primary electron transfer in bacterial photosynthetic reaction centers."

J. Barton, "Electron transfer reactions on a DNA strand."

R. A. Friesner, "Spectroscopy and electron transfer dynamics of the photosynthetic reaction center."

R. A. Marcus, "Recent developments in electron transfer."

D. Fassler, "Picosecond spectroscopy investigation of electron transfer in absorbed molecules."

9 August

D. Chandler, "Structure and path of electron transfer in an aqueous solution."

H. Iwamura, "High spin organic molecules and molecular assemblies."

J. S. Miller, "Donor acceptor-based organic ferromagnets."

J. D. Gust, "Strategies for enhancing quantum yields in photosynthetic reaction center mimics."

H. A. Staab, "Recent advances in intramolecular charge transfer interactions."

10 August

Y. Cao, "Light-induced electron transfer reactions."

A. Heller, "Electrical microengineering of redox enzymes."

A. Fujishima, "New trends in photoelectrochemistry."

M. A. Fox, "Vectorial electron transfer in three-dimensional systems."

A. Henglein, "Colloidal semiconductor particles: Electronic structure, electron transfer, fluorescence and photo-electron emission."

11 August

K. Singer, "Molecular effects in nonlinear optics."

Y. Wang, "Linear and nonlinear optical properties of semiconductor clusters."

J. Zyss, "Highly efficient nonlinear organic charge transfer materials for ultrafast infrared optical signal processing."

12 August

K. H. Grellmann, "Proton transfer in the excited state."

F. Wudl, "New non- D_{2h} -symmetry donors and acceptors."

A. MacDiarmid, "Polyaniline: A new concept in conducting polymers."

Electron Spectroscopy

Brewster Academy

D. T. Pierce, chairman; V. McKoy, vice chairman

18 July

N. D. Lang, "Theory of single atom imaging in the STM."

J. A. Stroscio, "STS of single atoms on surfaces."

P. E. Batson, "Silicon 2p absorption spectra obtained near defects and interfaces using spatially resolved EELS."

J. L. Dhemer, "Probing excited molecular states with multiphoton ionization."

J. J. McClelland, "Spin-polarized electron-atom scattering."

19 July

J. H. D. Eland, "Photoelectron-photoelectron coincidence spectroscopy and the spectra of doubly charged ions."

J. Comer, "Photoelectron studies of autoionizing resonances."

C. A. deLange, "UV photoelectron spectroscopy of transient species."

H. Ibach, "Phonon dispersion in ultrathin epitaxial overlayers."

S. A. Chambers, "Atomic geometry and band-bending at semiconductor interfaces."

20 July

C. Brechignac, "Transition from Van der Waals to metallic clusters."

P. Avouris, "Desorption induced by electronic transitions."

B. Schmiedeskamp, "Spin resolved photoemission from Xe-adsorbates on Pd(111)."

F. Sette, "Surface atom vibrational amplitudes studied with SEXAFS."

J. Stohr, "NEXAFS studies of simple and complex molecules."

21 July

J. P. Long, "Time-resolved synchrotron photoemission from laser-excited surfaces."

E. Jensen, "Auger-photoelectron coincidence spectroscopy of solids."

E. Bauer, "Low energy electron microscopy."

22 July

P. Steiner, "XPS of high T_c superconductors."

Chemistry of Energetic Materials

New Hampton School

C. B. Storm, chairman; T. B. Brill, vice chairman

27 June

Reactions in energetic materials: J. P. Ritchie, discussion leader

Speakers: P. Gray, J. P. Ritchie, J. R. Murdoch, C. F. Melius.

Modeling in reactive systems: D. S. Stewart, discussion leader.

Speakers: J. B. Bdzil, D. S. Stewart, D. Kassoy.

28 June

Equation of state: J. D. Johnson, discussion leader

Speakers: W. Byers-Brown, J. D. Johnson, M. S. Shaw, F. H. Ree.

Structural chemistry: H. Ammon, discussion leader.

Speakers: J. Holden, C. Lowe-Ma.

29 June

Thermal decomposition: T. B. Brill, discussion leader

Speakers: Y. T. Lee, T. B. Brill, A. C. Eckbreth, R. Behrens.

New materials: D. Ross, discussion leader

Speakers: P. E. Eaton, A. T. Nielsen, R. Schmitt.

30 June

Spectroscopy in fast reactions: A. M. Renlund, discussion leader

Speakers: C. Wittig, W. M. Trott, A. E. Delpuech, K. B. Eisenthal.

Outstanding problems in detonation science: W. C. Davis, discussion leader.

Poster session.

1 July

Chemistry at high pressures: S. Trevino, discussion leader

Speakers: P. Miller, M. Nicol, B. Swanson.

Environmental Sciences: Water

New Hampton School

M. R. Hoffmann, chairman; S. J. Eisenreich, vice chairman

Chemical Dynamics in Aquatic Systems

20 June

J. J. Morgan, "Chemical kinetics as applied to natural waters."

J. Robbins, "Time scales of chemical reactions and physical processes using radionuclides."

W. Stumm, "Important chemical processes in natural waters: Theory versus reality."

R. Schwarzenbach, "Transport and transformation of organic pollutants in lakes."

S. J. Eisenreich, "Organic contaminants as tracers of particle dynamics in large lakes."

21 June

F. Millero, "Reactions of hydrogen peroxide in natural waters."

D. Margerum, "Kinetics and mechanisms of aqueous-phase reactions of halogens and chloramines."

D. Asmus, "Decomposition of organic compounds via free radical pathways."

J. Schnoor, "Biogeochemical kinetics of acidified lake systems."

K. van Dam, "The chemistry of deep sea thermal vents."

22 June

O. Zafiriou, "Photochemistry and free radicals in the marine environment."

R. Zepp, "Production of photochemical transients in surface waters."

J. Hoigne, "Detection and fate of free radical intermediates in natural waters."

C. Foote, "Organic photochemistry in aqueous systems."

D. Bahnemann, "Photochemical processes on mineral surfaces."

23 June

A. Stone, "Hydrolysis and oxidation of organic compounds at the oxide/water interface."

A. Bunge, "Emulsion liquid membrane reactions and extractions."

R. Bales, "Chemistry at the ice-water interface."

J. Leckie, "The kinetics of surface complexation."

S. Karickhoff, "Structure-activity relationships."

24 June

S. E. Schwartz, "Interfacial mass-transport limitation to the uptake and reaction of gases in water."

D. J. Jacob, "Chemical processes in clouds."

P. Gschwend, "Diffusion in sedimentary environments."

Enzymes, Coenzymes and Metabolic Pathways

Kimball Union Academy

J. Kirsch and W. Ray, co-chairmen

4 July

J. Klinman, "Do hydrogens tunnel in enzyme reactions?"

C. Bernasconi, "Intrinsic reaction barriers. Principle of nonperfect synchronization and possible relevance to enzyme reactions."

W. Jencks, "How does ATP make work?"

O. Uhlenbeck, "RNA catalysis."

L. Orgel, "Template-directed synthesis of oligonucleotides and their analogues."

5 July

T. Alber, "Genetic and structural analyses of protein stability."

A. Varshavsky, "The degradation signal in a short-lived protein."

R. Matthews, "Point mutations as a probe of the folding mechanism of dihydrofolate reductase."

W. deGrado, "The design of peptides and proteins."

M. Laskowski, "Design of highly specific inhibitors of serine proteases."

6 July

M. Hackert, "Structural studies on pyruvoyl-dependent histidine decarboxylase."

E. Snell, "Catalytic properties and biogenesis of pyruvoyl-dependent histidine decarboxylase of *Lactobacillus*."

D. Eisenberg, "Functional implications of the structure of glutamine synthetase."

J. Villafranca, "Catalysis and mutagenesis of glutamine synthetase."

M. Gresser, "Interactions of vanadate with selected enzymes."

R. Thorneley, "Mechanism of nitro-genase action."

7 July

A. Fersht, "Enzyme structure and activity relationships."

J. Knowles, "Manipulative mutagenesis of enzymes."

J. Wells, "Dissecting the catalytic apparatus of subtilisin."

R. Sauer, "Decoding the structural and functional information in protein sequences."

A. Kornberg, "Enzymatic mechanism for initiation of *Escherichia coli* chromosome replication."

8 July

M. Navia, "X-ray structural studies on the inhibition of elastase by β -lactams."

P. Frey, "Lysine 2,3-aminomutase, SAM, pyridoxal phosphate, iron and an unknown reaction mechanism."

S. Withers, "Fluorinated substrates as probes of enzyme specificity and mechanisms."

Extrachromosomal Elements—Mitochondrial and Chloroplast Biogenesis

Proctor Academy

N. Martin, chairman

4 July

W. Neupert, "Dissecting mitochondrial import into distinct steps."

G. Schatz, "Mechanisms of mitochondrial protein import."

G. Shore, "Mitochondrial targeting and membrane insertion."

P. Weisbeek, "Protein import and routing in chloroplasts."

L. Gierasch, "Biophysical studies of targeting sequences."

E. Craig, "The HSP 70 multigenic family of *S. cerevisiae*."

5 July

J. Boynton, "Transformation and cytogenetics of *Chlamydomonas* chloroplast DNA."

G. Attardi, "Mitochondrial mediated transformation of human cells."

H. Bertrand, "Integration of linear double strand DNA plasmids into the mitochondrial chromosome of *Neurospora*."

P. Laipis, "Heteroplasmy in mice and cows."

F. Foury, "Nuclear genes required for the maintenance of mitochondrial DNA."

B. Sears, "The plastom mutator of *Oenothera*."

6 July

W. Gruissem, "Regulation of mRNA stability during chloroplast development."

J. Jaehning, "Transcription by the yeast mitochondrial RNA polymerase."

H. Tabak, "Yeast mitochondrial RNA polymerase and the mechanism of promoter recognition."

K. Stuart, "Developmental regulation of mitochondrial gene expression by mRNA editing in trypanosomes."

M. Hanson, "Structure and expression of a mitochondrial DNA region specifying male sterility in petunia."

C. Levings, "Maize mitochondrial genes."

U. Kuck, "Organization and expression of organelle genes from algae."

7 July

A. Tzagoloff, "In vitro processing of cytochrome b pre-messenger RNA."

A. Lambowitz, "Involvement of an aminoacyl synthetase in group I intron excision."

P. Slonimski, "Expression of mosaic genes in mitochondria and their nuclear control."

E. Tobin, "Regulation of phytochrome responsive nuclear genes."

G. Schmidt, "Regulation of the biosynthesis of pigment protein complexes in *Chlamydomonas*."

8 July

R. Poyton, "Regulation of nuclear genes for cytochrome c oxidase."

D. von Wettstein, "Interaction of chloroplast and nuclear genes in the expression of chloroplast constituents."

R. Herrmann, "Thylakoid membrane biogenesis."

Foams

Plymouth State College (S)

R. B. Turner, chairman; R. J. G. Domínguez, vice chairman

8 August

J. Thoen, "Demold properties of rigid urethane foams: Mechanistic aspects."

G. M. F. de Nazelle, "Sorption measurement of gas diffusion and solubility in solid polyurethane."

G. C. J. Bart, "Aging models of polyurethane foams (lumped model compared with heterogeneous models)."

N. C. Hilyard, "Optimization of the design of noise suppression systems."

9 August

G. A. Campbell, "An analysis of experimental data and development of a alternative theory for heterogeneous nucleation in polymeric foams."

M. B. Rhodes, "Quantitative characterization of foam systems."

S. P. Chum, L. C. Rubens, "Production of microcellular foam by nucleation at molecular level."

C. P. Christenson, "Role of hydrogen bonding in flexible urethane foams."

10 August

G. A. Taylor, "Polyol synthesis structure and urethane end use properties."

G. Burkhart, "Surfactants and foams."

R. Mascioli, "High molecular weight polyol applications."

F. Bailey, "Control of the foaming reaction in flexible urethane foams."

11 August

J. McFarland, "Science as a basis for CFC regulation."

K. T. Dishart, "Development program on fluorocarbon alternatives blowing agent for polyurethane foam."

W.-P. Wu, "Blowing agent emission of polystyrene foam."

L. Gibson, "Modeling the mechanical behavior of cellular materials."

12 August

P. Rand, "Low density microcellular foams."

C. Maier, A. Hrymok, P. E. Wood, "Fluid mechanical problems in RIM processing."

S. A. Snow, T. M. Gentile, "Novel modification of silicone surfactants systems to increase the porosity of polyurethane foams."

Fractals

Tilton School

R. Voss, chairman; P. Meakin, vice chairman

8 August

A. Ahahony, "Superlocalization on fractals."

R. Jullien, "Aggregation and deposition."

A. Skjeltorp, "Fractal cracks in microsphere monolayers."

Y. Kagan, "Earthquakes and fractals."

P. Prusinkiewicz, "L-systems, fractals, and plant growth."

9 August

C. Tricot, "Packing and Bouligand fractal dimensions."

T. Halsey, "Physical processes at fractal surfaces."

L. Sander, "Patterns and disorder in electrochemical deposition."

M. Geller, "Mapping the universe."

A. Pentland, "Fractals in image analysis and processing."

10 August

F. Family, "Scaling group formulation of multifractals."

R. Ziff, "Percolation, scattering, and catalysis."

B. Sapoval, "Flux across fractal interfaces."

J. D. Farmer, "Fat fractals."

P. Bak, "Self-organizing criticality."

11 August

P. Grassberger, "Multifractal measures on strange attractors."

R. Orbach, "Fractons."

S. Redner, "Multiplicative processes and multifractals."

H.-O. Peitgen, "The beauty of fractals."

12 August

R. Ball, "Aggregation."

B. Mandelbrot, "Fractals and multifractals."

L. Pietronero, "Theory of fractal growth."

Fuel Science

New Hampton School

M. L. Gorbaty, chairman; T. G. Squires, vice chairman

4 July

F. P. Burke, "Carbon isotope ratios of fossil fuels and derived products."

C. W. Curtis, "Interactive chemistry of coal-oil reactions."

B. C. Bockrath, "Identifying reaction mechanisms in complex media."

J. G. Gatsis, "Chemical behavior of asphaltenes in coal/oil interaction."

J. Potter, "Optical methods to study thermal degradation of coal."

5 July

E. Fitzer, "Model compound studies of coking mechanisms."

H. P. Stephens, "Hydrogen transfer and 'coke' formation on coal liquefaction."

J. D. Bacha, "Importance of alkyl substituents in coke formation."

L. S. Singer, I. C. Lewis, R. A. Greinke, "Kinetics and mechanisms of pitch polymerization."

6 July

A. Oberlin, "Structural and microtextural descriptions of mesophase and coke formation."

I. Mochida, "Modeling and control of delayed coking for needle coke."

K. van Heek, "Physical and chemical properties of coal hydrolysis chars."

M. Siskin, "Structure of Rundle Ramsay crossing oil shale kerogen."

I. R. Kaplan, "Role of minerals in the thermal decomposition of kerogen and coal."

7 July

A. K. Burnham, "Modeling the kinetics of petroleum generation."

D. N. Taulbee, "Concentration and characterization of macerals from Devonian oil shales."

T. O. Mitchell, "Low severity oil shale liquefaction."

R. M. Perhac, "The acid rain issue."

8 July

M. Francisco, "Sulfur structures in petroleum residua."

E. W. Hagaman, "DCP MAS C13 NMR—a new method for gaining structural information at coal reaction centers."

Y. Sanada, "In situ monitoring of pyrolysis and hydrogenation of heavy hydrocarbons with high temperature and high pressure NMR and ESR."

Fungal Metabolism

Plymouth State College (N)

L. L. Lasure and N. R. Morris, co-chairmen

11 July

M. J. Hynes, discussion leader
Speakers: M. Carlson, H. Arst, M. Hynes.

S. Queener, discussion leader
Speakers: P. Skatrud, R. Berka.

12 July

O. Yoder, discussion leader
Speakers: R. Michelmores, P. Kolattukudy, N. Van Alfen.

P. T. Magee, discussion leader
Speakers: J. Gorman, P. T. Magee.

13 July

M. Schechtman, discussion leader
Speakers: R. Metznerberg, J. Carbon, M. Schechtman.

W. E. Timberlake, discussion leader
Speakers: T. Adams, P. Borgia.

14 July

A. Lambowitz, discussion leader
Speakers: U. L. Raj Bhandary, H. Bertrand, A. Lambowitz.

I. Herskowitz, discussion leader
Speakers: D. Beach, J. G. H. Wesels.

15 July

R. Crawford, discussion leader
Speakers: W. A. Wood, M. Tien, R. A. Blanchette.

Glass

Tilton School

J. H. Simmons, chairman; R. J. Eagan, vice chairman

1 August

A. Wright, "Use of diffraction data for testing structural models."

R. Sinclair, "Neutron inelastic scattering studies of the dynamics of amorphous solids."

T. Soules, "Stochastic and MD models of the glass structure."

N. Greaves, "EXAFS and XANES studies of the structure of glasses and films."

I. Yasui, "X-ray diffraction and MD structure studies."

2 August

J. F. Sadoc, "Topological models and hypergeometry for the structure of amorphous solids."

S. R. Elliott, "Medium range structure and photostructural effects in chalcogenides."

A. Angell, "Effect of structure on transport properties."

Poster session 1: Structure of glass.
Poster session 2: Crack tip structure and fracture.

3 August

H. C. Andersen, "Molecular dynamics modeling of the glass transitions."

J. Dufty, "Hydrodynamic models of the glass transition."

G. Grest, "Glass transition models."

X. Vacher, "Fractal structures in gels."

4 August

A. Navrotsky, "Structure and thermodynamics of highly metastable silicates made by CVD and sol gel."

J. Kirkpatrick, "Magic angle spinning NMR studies of hydrous and anhydrous glasses."

R. Dupree, "MASNMR studies of the structure of glasses and film."

E. A. Porai-Koshits, "The structure of glass."

L. Hench, "Biologically active glasses and the origin of life."

5 August

M. Weber, "Optical studies of the structure of glass."

P. Smith, "Electronic polarizability effects on the non-linear index of glasses."

Gravitational Effects on Living Systems

Colby-Sawyer College (N)

E. K. Ray, chairman; R. H. Kretsinger and S. I. Roux, co-vice chairmen

4 July

D. K. Kondipudi, "Sensitivity of non-equilibrium systems to gravitational field."

W. Hymer, "Pituitary cells in microgravity."

I. V. Konstantinova, "Effects on lymphocytes."

A. Sievers, "Early event in root gravitropism."

5 July

E. Purcell, "Physics on a micron scale (physics a bacterium needs to know)."

To be announced, "Direct and indirect effects of microgravity."

J. O. Kessler, "Individual and cooperative dynamics of swimming microorganisms."

L. DeLucas, "Growth of organic molecules in microgravity."

E. Roberts, "Biomineralization."

6 July

T. Tompson, "Cell membrane deformability."

K. Poff, "Control of genetic expression in plants."

L. Keds, "Control of gene expression in muscle."

To be announced, "Cytoskeleton, microtubules."

To be announced, "Musculoskeletal."

Soviet speaker, "Cardiovascular."

7 July

J. Goldberg, "Vestibular systems."

D. P. Corey, "Sensory transduction and adaptation in vertebrate vestibular organ hair cells."

K. Johnson, "Neurosensory integration of mechanical stimuli."

I. B. Koslovskaya, "Vestibular systems in animal models."

D. Jaron, "Modeling of cardiovascular dynamics under acceleration."

L. Kazarian, "Effect of acceleration forces at the tissue and cellular level."

8 July

Thinking and discussion session: panel, G. Sonnenfeld and others.

Hemostasis and Thrombosis

Proctor Academy

J. G. White, chairman; C. Esmon, vice chairman

20 June

Mechanisms of protein-protein interaction in coagulation: C. Esmon, discussion leader

Speakers: S. Krishnaswamy, D. Stearns, W. Konigsberg, T. Edgington.

Platelet membrane glycoproteins: surface and transmembrane interactions: D. Phillips, discussion leader

Speakers: D. Phillips, T. Kunicki, S. Santoro.

21 June

Cellular contacts: Adhesive molecules as determinants in thrombosis and atherosclerosis: J. Hawiger, discussion leader

Speakers: G. Palade, M. Gimbrone, K. Kaplan, J. Hawiger.

The megakaryocyte-platelet axis: J. Breton-Gorius, discussion leader

Speakers: J. Breton-Gorius, D. Zucker-Franklin, R. Leven, J. Radley.

22 June

Aspects of stimulus response coupling in platelets: Neville Crawford, discussion leader

Speakers: E. McIntyre, L. Brass, N. Crawford, J. Daniel.

New Horizons Abstract session.

23 June

Dysfunctional endothelium: J. Hoak, discussion leader

Speakers: J. Hoak, D. Harrison, G. Vercellotti, R. M. J. Palmer.

S. J. Singer, "Molecular mechanisms of cell adhesion."

24 June

Synthesis and processing of coagulation factors: J. Suttie, discussion leader

Speakers: J. Suttie, B. Furie, R. Kaufman, H. Pannekoek.

Heterocyclic Compounds

New Hampton School

H. W. Gschwend, chairman; D. Liotta, vice chairman

11 July

D. Boger, "Inverse electron demand Diels-Alder reactions: Scope and application."

P. G. Sammes, "Cycloadditions across 1,3-dipoles in natural product synthesis."

M. Regitz, "Phospha alkynes—useful building blocks in heterocyclic synthesis."

C. Angst, "Synthesis of unsaturated amino acids via heterocyclic intermediates."

12 July

W. Oppolzer, "N-containing ring-systems as templates or targets in organic synthesis."

M. Logan, "Novel heterocycles from borane isonitrile complexes."

R. H. Schlessinger, "A vinylogous urethane approach to Virginiamycin."

W. H. Speckamp, "Novel aspects of N-acyliminium chemistry."

13 July

W. Steglich, "Synthesis of new heterocyclic compounds from fungi."

D. Coffen, "Microbial lipases in the synthesis of alpha-tocopherol and other optically pure bioactive heterocycles."

B. Ganem, "Synthesis of biochemically active heterocyclic compounds."

A. J. Cocuzza, "Fluorescence labeled dideoxy nucleotides as reagents for automated DNA sequencing."

14 July

B. Fraser-Reid, "Some synthetic transformations that (apparently) rely on the anomeric effect."

H. Wasserman, "New roles of the carbonyl group in heterocyclic synthesis."

T. Gallagher, "Selectivity in heterocyclic synthesis."

L. Ghose, "New selective methods for heterocyclic synthesis."

15 July

S. Nakatsuka, "Total synthesis of Teleocidin A and B."

P. R. McGuirk, "Synthesis of 7-Aryl-1,4-dihydroquinol-4-one-3 carboxylic acids via Pd and Ni catalyzed coupling reactions."

pling reactions."

Research at High Pressures

Kimball Union Academy

A. L. Ruoff, chairman; W. J. Nellis, vice chairman

27 June

Y. K. Vohra, "X-ray diffraction above 2 mbars."

N. Winters, "A theoretical study of the effects of high pressure on electronic transitions in ruby."

J. A. Moriarty, "Equation of state of metals to 10 mbars."

R. S. Hixson, "Sound velocity measurements in liquid metals."

Invited posters.

28 June

M.-K. Wu, "High T_c superconductivity in perovskites."

R. Griessen, "Superconducting metal-hydrides and metal-oxides under pressure."

P. Yu, "Superconductivity and other studies of electrical properties."

B. Bireckoven, "Superconductivity of alkali earth metals."

B. Weinstein, "Interface modified phase transitions in superlattices."

M. Chandrasekhar, "Pressure dependence of electronic transitions in quantum wells."

A. R. Adams, "Low dimensional semiconductor structures."

29 June

W. A. Bassett, "Pressure and temperature as tools in understanding the earth."

R. Jeanloz, "Chemistry and physics of the lower mantle."

H. K. Mao, "Phase transitions in the earth's mantle."

W. J. Nellis, "The interior of Uranus: Planetary ices at high pressure and temperature."

U. G. Benedict, "Phase transitions in actinides."

B. Johansson, "Theory of the behavior of actinides."

Y. Syono, "Shock-induced phase transitions from the microscopic approach."

30 June

P. Pruzan, "Lattice dynamics of NH_3 and ND_3 ."

J. Schouten, "Phase equilibria in H_2 -He and N_2 -He."

I. F. Silvera, "Optical properties and metallization of H_2 ."

N. E. Christensen, "Calculated dependence of band structures and optical spectra of semiconductors."

N. Ashcroft, "If Jupiter can do it, why can't we?"

1 July

L. Chhabildas, "Reverse phase transformations in shocked silicate and calcite."

Y. Gupta, "Optical experiments in shocked ruby."

J. M. Brown, "Results of ultrasonic measurements in the diamond anvil cell."

T. Gregorian, "Behavior of 4f electrons of lanthanum ions in various hosts."

High Temperature Chemistry

Plymouth State College (N)

P. C. Nordine, chairman; M. Frisch, vice chairman

25 July

J. G. Edwards, "Ternary metal sulfides and selenides."

O. J. Kleppa, L. Topor, "Borides, silicides and intermetallics."

K. Frase, "Rare earth-Ba-Cu oxide phase diagrams."

G. J. Hyland, "Ion equilibria over condensed uranium oxide."

L. Knight, "Laser vaporization, matrix trapping and ESR characterization of ions."

26 July

R. Saykally, "IR laser spectroscopy of molecular ions in discharges."

K. Jordon, "Theoretical and experimental studies of ion properties."

L. S. Siderov, "Ion molecule equilibrium in high temperature systems and electron affinity determination."

K. Luthra, "Chemical interactions in ceramics composites."

E. Fitzer, "Chances and limits of high temperature fibers (C, SiC, oxides)."

Invited poster session on recent advances in High Temperature Chemistry

27 July

P. E. Potter, "High temperature chemistry of nuclear reactor safety."

R. R. Hobbins, "High temperature chemistry of TMI."

A. Nagelberg, "Kinetics of composite material formation by directed oxidation of molten metals."

Speaker to be announced, "Vapor-liquid-solid fiber synthesis."

Invited poster session on recent advances in High Temperature Chemistry

28 July

M. Frenklach, "Mechanisms of diamond nucleation."

R. O. Ritchie, "Kinetics of subcritical crack growth in monolithic and composite materials."

29 July

J. P. Coutures, "Kinetics of amorphous oxide formation in containerless conditions."

D. Day, "Containerless glass formation in space."

R. Hauge, "Dynamics and surface properties of levitated liquids."

Hormone Action

Kimball Union Academy

T. D. Gelehrter and B. S. Katzenellenbogen, co-chairmen

7 August

Opening plenary lecture: F. Kafatos, "Tissue and temporal control of gene expression during development."

8 August

Hormones and development—I: D. Shapiro, chairman

Speakers: A. Kimmel, W. Seagraves, M. Simon, M. G. Rosenfeld.

Hormones and development—II: M. Meisler, chairman

Speakers: M. Meisler, G. Ringold, S. McKnight, G. Cunha.

9 August

Growth factors, oncogenes and extracellular matrix: M. Lippman, chairman

Speakers: M. Lippman, L. Liotta, A. Roberts, R. Nusse.

Hormonal regulation of proteolytic activity: T. Gelehrter, chairman

Speakers: T. Gelehrter, A. Hsueh, J. Flier.

10 August

Regulation of gene expression by hormones: D. Granner, chairman

Speakers: G. Hager, G. Schutz, M. Nemer, D. Granner.

G-proteins and signal transduction: A. Gilman, chairman

Speakers: R. Lefkowitz, A. Gilman, L. Birnbaumer.

11 August

Pituitary and hypothalamic hormones: J. Gorski, chairman

Speakers: B. McEwen, H. Akil, J. Gorski, H. Samuels.

Special topics: B. Katzenellenbogen, chairman

Speakers: B. Emerson, P. Sigler.

12 August

Insulin and insulin-like growth factors: F. Finn, chairman

Speakers: C. R. Kahn, R. Roth, A. Ullrich.

Immobilization and Biotechnology

Holderness School

J. Bonaventura, chairman; I. Chaiken, vice chairman

8 August

P. Hensley, "Fortuitous versus evolved recognition in biomolecules."

E. Getzoff, "Principles of protein recognition."

T. W. Hutchens, "Immobilized metal affinity chromatography: Protein surface molecular architecture and metal affinity relationships."

E. Chiancone, "Recognition between soluble and immobilized protein subunits: Analysis and application."

J. Ugelstad, "Immobilized antibodies and the separation of cells."

D. Litman, "Diagnostic applications of immunochromatography."

9 August

M. Lewis, "Fractal surfaces of proteins."

B. Erickson, "Designed beta structures."

C. Cantor, "Human Genome Project (how to handle huge chunks of DNA)."

K. E. Drexler, "Nanomachines and molecular assembly."

H. Dintzis, "Interactions of multivalent polymers with cell surface receptors in the immune system."

J. Andrade, "Simulation of protein adsorption: Computer graphics, surface tension and solution denaturation studies of model proteins."

F. Regnier, "The role of protein structure in chromatographic behavior."

10 August

A. Patchornik, "Immobilized reagents mimicking biological reactions."

H. Swaisgood, "Immobilized proteins and the detection of changes in protein structure."

R. Youle, "Design of proteins for cancer therapy."

V. Anicetti, "Detection and quantitation of host cell impurities in rDNA pharmaceuticals."

J. M. Egly, "Immobilized nucleic acids and the isolation of transcription factors."

11 August

M. Wilchek, "Problems in affinity chromatography (and possible solutions)."

J. Eveleigh, "Novel liquid and solid affinity supports based on fluorocarbons."

L. Errede, "Biologically reactive PTFE membranes: Structure, fabrication and use."

W. Scouten, "New aspects of biorecognition technology."

E. Katchalski-Katzir, "The nature of specific protein-protein and protein-nucleic acid interactions."

12 August

D. Rittschof, "Affinity chromatography of whole organisms and the use of immobilized species as components of non-toxic antifouling coatings."

K. Mosbach, "New applications in affinity technology (with special emphasis on molecular imprinting and gene fusion products)."

J. Porath, "Thiophilic electron donor-acceptor affinity chromatography."

Immunochemistry and Immunobiology

Proctor Academy

E. M. Shevach, chairman; S. Hedrick, vice chairman

11 July

Antigen presentation: M. Geffer, discussion leader

Speakers: M. Geffer, A. Townsend, P. Marrack.

T cell receptors: S. Hedrick, discussion leader

Speakers: J. Kappler, M. Davis.

12 July

Lymphocyte activation: P. Lipsky, discussion leader

Speakers: A. DeFranco, L. Samelson, R. Snyderman.

Suppressor cells: R. Germain, discussion leader

Speakers: Y. Asano, R. Germain.

13 July

Accessory molecules: J. Parnes, discussion leader

Speakers: J. Parnes, T. Springer, D. Littman.

T cell ontogeny: A. Kruisbeck, discussion leader

Speakers: M. Cooper, H. Von Boehmer.

14 July

Gene regulation in the immune system: K. Calame, discussion leader

Speakers: D. Mathis, C. Terhorst, H. Singh.

Hormone receptors: E. M. Shevach, discussion leader

Speakers: J. Roth, S. Cotechia.

15 July

Lymphokine regulation of immune responsiveness: T. Mossman

Speakers: T. Mossman, F. Finkelman.

Inorganic Chemistry

Brewster Academy

J. N. Armor, chairman: T. J. Marks, vice chairman

1 August

A. W. Sleight, "Chemistry based mechanism for superconductivity."

B. Raveau, "Mixed valence copper oxides: Structure and non-stoichiometry in connection with superconductivity."

D. W. Murphy, "Reactivity and substitution chemistry of high T_c superconductors."

J. B. Goodenough, "The role of oxygen in the high T_c superconductors."

2 August

K. R. Poeppelmeier, "Host lattice chemistry of perovskite."

E. M. Engler, "New insights into the structural and electronic requirements of high T_c in Cu oxides."

A. M. Stacy, "The electronic properties of copper oxides."

D. C. Bradley, "Metal alkoxides as precursors."

P. E. D. Morgan, "Poly-oxy alkoxides and other precursors to ceramic materials."

3 August

H. Dislich, "From metal alkoxides to multicomponent oxides."

P. J. Fagan, "Synthesis of building blocks for molecular engineering of solid state materials."

R. L. Pober, "Alkoxide remedies for ceramic processing headaches."

C. J. Brinker, "Chemistry-structure property relationships in alkoxide derived films and fibers."

4 August

E. Matijevic, "Synthesis of well-defined and complex inorganic colloids in solution and aerosol phases."

W. R. Moser, "Direct synthesis of inorganic solids by the high temperature aerosol decomposition process."

L. V. Interrante, "Synthesis of novel inorganic materials using organometallic precursors."

R. Hoppe, "Routes to new metal oxides and fluorides."

5 August

G. P. Pez, "Novel metal complexes as reversible adsorbents for CO and olefins."

M. E. Kenney, "The synthesis and properties of tube silicates."

Chemistry at Interfaces

Kimball Union Academy

W. C. Conner, Jr., chairman; R. Johnson, vice chairman

25 July

S. Safran, "Advances in microemulsions."
P. Kilpatrick, "Lyotropic liquid crystal phase behavior."
R. Strey, "Details of microemulsion microstructure."
T. Zemb, "Geometrical constraints and scattering of random interfaces in microemulsions."

26 July

R. G. Nuzzo, "Polymer surfaces."
M. Tirrell, "Self-assembled layers of block copolymers."
M. Hair, "Polymer adsorption on mica: Surface force measurement."
M. Muthukumar, "Polymer-surface interactions: Theory and computer simulation."

27 July

H. Elwing, "Protein interactions at solid surfaces."
Andrade, "Competitive adsorption of proteins."
P. Monson, "Adsorption from fluid mixtures: Computer simulation and theory."
E. Gulari, "Steric effects on surfaces."

28 July

R. Beyers, "Microscopy of superconducting surfaces."
A. Stacey, "Surface studies of superconductors."
P. Gallagher, "Interactions of high T_c superconductors with the atmosphere."
C. Taraford, "Lipids at the interface: From Benjamin Franklin to modern cell biology."

29 July

T. Shaw, "Superconducting interfaces."
A. Sleight, "Is there interfacial superconductivity?"

Ion Channels in Muscle and Other Excitable Membranes

Colby-Sawyer College (S)

P. R. Adams, chairman; F. Sigworth, vice chairman

1 August

C. Armstrong, to be announced.
B. Bean, "Transmitter regulation of calcium channels by alteration of voltage-dependent activation."
J. Connor, to be announced.
L. Jan, to be announced.
W. Stuhmer, "Probing the sodium channel."

2 August

D. Brown, to be announced.
S. Jones, to be announced.
B. Hille, "Muscarinic actions on M-current in sympathetic ganglion cells."
A. Dolphin, "G proteins in nerve cells."

A. Brown, "G proteins in heart muscle."

3 August

P. Ascher, M. Mayer, S. Cull-Candy, S. Siegelbaum, R. MacDonald, subjects to be announced.

4 August

O. Hamill, A. North, N. Spitzer, subjects to be announced.
C. Miller, "Diplomatic channels."

5 August

H. Lester, K. Imoto, S. Heinemann, subjects to be announced.

Chemistry and Physics of Isotopes

Tilton School

M. H. O'Leary, chairman; M. Kreevoy, vice chairman

27 June

P. Cook, "Isotope effects in the malic enzyme reaction."
D. Quinn, "Hydrolytic enzymes."
R. Schowen, "Charge-relay catalysis."
J. Klinman, "Hydrogen tunneling in enzyme reactions."
M. Kreevoy, "Tunneling in hydrogen transfers."

28 June

R. Pascal, "Deuterium kinetic isotope by D NMR."
V. Bierbaum, "Gas phase ion chemistry and dynamics."
C. Bernasconi, "Carbanions and proton transfers."
W. H. Saunders, "Isotope effects in elimination reactions."
R. Gordon, "Isotope effects in chemical kinetics."

29 June

A. Long, "Hydrogen isotopes in fossil wood from packrat middens."
D. DesMarais, "Carbon isotopes in microbial mats and stromatolites."
H. Oeschger, "Climatic reconstruction from polar ice cores."
J. Berry, "Fractionation of carbon and oxygen isotopes in plant respiration."
L. Sternberg, "Oxygen and hydrogen isotope ratios of plant cellulose."

30 June

A. Mariotti, "Nitrogen isotopes in environmental ecology."
G. Rau, "Nitrogen isotopes in the water column."
M. Fogel, "Biogeochemical processes in estuaries."
C. D. Keeling, "Carbon isotopes and the global carbon cycle."

1 July

V. Babamov, "Theory of isotope effects in hydrogen-atom transfer reactions."
W. Bialek, "Quantum effects in biochemical reactions."
P. Armentrout, "Periodic trends in the chemistry of atomic ions with H_2 , D_2 , and HD ."

Lasers in Medicine and Biology

Kimball Union Academy

J. A. Dixon and C. Sacchi, co-chairmen; R. C. Straight, vice chairman

11 July

J. M. J. Madey, "Free electron laser technology options for biomedical research."
B. Stuck, "Corneal effects of IR FEL (2.9–4.0 μm)."
R. C. Straight, "Biomedical applications of the free electron laser."
M. Berns, "Free electron laser studies on cellular systems."
B. C. Wilson, "Tissue optics."
M. J. Berry, "IR ablation: Physics and chemistry of laser tissue interaction."

12 July

K. Schulten, "Light diagnostics in biomolecules and cells."
A. J. Visser, "Ultrasensitive time-resolved polarized fluorescence spectroscopy in biology and medicine."
R. Bencasson, "Biomedical applications of laser fluorimetry."
R. Ramponi, "Time-gated fluorescence spectroscopy of biological samples."
J. Callis, "Remote spectroscopic measurements in tissue."
B. Chance, "Picosecond near-IR spectroscopy of animal models."
M. Field, "Laser spectroscopy in biological tissue."

13 July

R. Bonner, "Erbium, holmium and pulsed dye lasers and remote sensing of atheroma."
F. Cross, "Excimer and pulsed Nd:YAG systems: A perspective of mechanisms."
G. Schmahl, "Synchrotron radiation and zone plate microscopy."
R. Birngruber, "Pico- and femtosecond interaction mechanisms."
E. Profsky, "Far infrared applications."

14 July

S. Trokel, "Clinical applications of the argon fluoride laser-corneal interactions."
M. Wolbarsht, "Intraocular surgery in the 3 μm wavelength region."
J. Marshall, "Retinal responses to 400–1400 micrometer laser sources."
C. Gomer, "Present status of photoradiation (HPD) therapy."
C. Shea, "Requirements for novel photosensitizers."
T. Hasan, "The search, present status."

15 July

T. Karu, "Low-dose laser tissue effects."
Chairman's summary of sessions and posters.

Lipid Metabolism

Kimball Union Academy

G. Rothblat, chairman; E. A. Dennis, vice chairman

20 June

J. Burch, "Chromatin structure and vitellogenin gene expression."

J. Breslow, "Hepatic control of apoprotein gene expression."

P. Brecher, "Regulation of fatty acid binding protein."

L. Chan, "Structure and evolution of apoB."

R. Glickman, "Synthesis of intestinal apoB."

21 June

R. Havel, "Lipoprotein and other receptors in hepatocyte endosomes."
I. van Driel, "Biochemical analysis of normal and mutant LDL receptors."
J. Boyles, "A role of apolipoprotein E and the LDL receptor in neurobiology."
D. Voelker, "Phosphatidylserine synthesis and translocation in animal cells."
R. Pagano, "Intracellular transport of fluorescent lipid analogs."

22 June

M. Phillips, "Physical state of foam cell lipids."
I. Tabas, "Intracellular cholesterol metabolism in macrophage foam cells."
J. Glick, "Metabolism of cholesteryl esters and triglycerides in model foam cells."
A. Tall, "Plasma lipid transfer proteins."
P. Dolphin, "Covalent catalytic mechanism for LCAT."

23 June

J. Faust, "Defective metabolism of LDC-derived cholesterol in Niemann-Pick, type C fibroblasts."
M. Sinensky, "Isoprenylated proteins in the translational control of mevalonate biosynthesis."
C. Raetz, "Peroxisome assembly and plasmalogen function in animal cells."
D. Kritchevsky, "Diet, lipids and atherosclerosis."

24 June

S. Prescott, "Metabolism of platelet-activating factor."
M. Low, "Metabolism of glycosyl phosphatidylinositol membrane protein anchor."
R. Alexander, "Hormone stimulation of diacylglycerol formation in vascular smooth muscle."

Liquid Crystalline Polymers

Colby-Sawyer College (S)

A. Blumstein and W. Krigbaum, co-chairmen; G. Calundann, vice chairman

11 July

H. Ringsdorf, "Molecular engineering of polymer liquid crystals."
R. W. Lenz, "Synthesis and properties of mesogenic-nonmesogenic copolyesters."
G. W. Gray, "Synthesis and properties of side chain polymer liquid crystals."
H. Finkelmann, "Molecular geometry and micellar dimensions."
R. Zentel, "Liquid crystalline elastomers with chiral phases."

12 July

A. Ten Bosch, "Conformational

changes in liquid crystal main chain polymers."

M. Warner, "The physics of nematic and smectic polymer networks."

A. Ciferri, "Compatibility in polymer liquid crystals."

P. Cotton, "Conformation and structure of comb-like polymers as observed by small angle neutron scattering."

13 July

H. Spiess, "Molecular order and mobility in liquid crystal polymers from deuterium NMR and two-dimensional ¹³C-MAS NMR."

E. Samulski, "Structural aspects of liquid crystal polymers via NMR."

G. Berry, "Elastic constants by light scattering."

R. Meyer, "Dynamic instabilities in polymer liquid crystals."

14 July

G. Marucci, "Rheology and flow of polymer liquid crystals."

R. S. Porter, "Rheology structure for star lyotropic liquid crystal polymer systems."

A. Keller, "States of organization in polymers from crystals to liquid crystals."

J. Wendorff, "Interaction of PLCs with external fields."

15 July

H. Yoon, "Optical nonlinearity in polymer liquid crystals."

H. Coles, "Static and dynamic properties of polymer liquid crystals."

T. Kajiyama, "Composites of low molecular liquid crystals with polymers."

Lysosomes

Plymouth State College (S)

W. S. Sly, chairman; P. D. Stahl, vice chairman

27 June

P. Lobel, "Receptor structure and function."

P. Nissley, "Biology and developmental regulation of the IGF-II receptor."

H. Geuze, "Immunocytochemistry of receptor traffic."

P. Parham, "Molecular approaches to clathrin function."

S. Lemon, "Analysis of clathrin heavy chain function in yeast."

K. Sandvig, "An alternate pathway to clathrin-mediated endocytosis."

28 June

J. Rothman, "Enzymology of protein transport in the Golgi apparatus."

S. Ferro-Novick, "Translocation and transport of yeast prepro alpha factor in vitro."

A. Wandinger-Ness, "Perforated MDCK cells extrude secretory vesicles carrying surface protein."

S. Pfeffer, "In vitro reconstitution of Man 6-P receptor recycling."

B. Storrie, "Lysosome-lysosome exchange of contents and membranes."

29 June

M. Rechsteiner, "Ubiquitin-dependent protein turnover."

J. F. Dice, "Peptide signals for lysosomal degradation."

R. Klausner, "Lysosomal and non-lysosomal pathways for degradation of T-cell receptors."

S. Diment, "Endosomal proteolysis in macrophages."

G. De Martino, "Enzymology and physiology of calcium-dependent proteases."

30 June

S. Gluck, "Biochemistry of the renal vacuolar proton pump."

S. Olsnes, "Regulation of the chloride/bicarbonate antiport."

S. Silverstein, "A novel transport pathway from cytosol to endosomes and lysosomes."

S. Kornfeld, "To lysosomes or not to lysosomes: The molecular basis of the decision."

1 July

E. Birkenmeier, "Lysosomal enzyme gene expression in transgenic mice."

S. Lee, "Proliferin: Hormone or lysosomal enzyme?"

I. Mellman, "The function of lysosome-associated membrane proteins."

Magnetic Resonance in Biology and Medicine

Tilton School

N. D. Chasteen, chairman; R. G. Bryant, vice chairman

18 July

S. J. Opella, "Solid state NMR of proteins."

G. P. Drobny, "Solid state DNMR of oligonucleotides."

P. D. Ellis, "Solid state ¹¹³Cd NMR of proteins."

P. Riesz, "Radical generation by ultrasound."

R. P. Mason, "Hydrazine radical damage to oxyhemoglobin."

19 July

L. J. Berliner, "In vivo EPR: The prospects?"

H. J. Halpern, "EPR imaging at low frequencies."

H. M. Swartz, "ESR imaging of redox metabolism."

A. Bax, "New NMR methods for macromolecules."

J. D. Prestegard, "Structure of acyl carrier protein by NMR."

20 July

J. S. Leigh, "In vivo metabolism in animals and man."

J. J. H. Ackerman, "Metabolism and blood flow via NMR in situ."

K. Ugurbil, "NMR of bioenergetics in the intact heart."

G. Brudvig, "EPR of Mn in photosystem II."

G. Babcock, "Free radicals in the photosynthetic oxygen evolving system."

21 July

D. J. Singel, "¹⁴N ESEEM and metalloprotein structure."

W. Froncisz, "New applications of loop-gap resonators."

H. van Willigen, "ENDOR and time resolved ESR of electron transfer reactions."

C. S. Springer, Jr., "20 MQNMR of isolated half-integer spins."

22 July

M. J. Gresser, "⁵¹V of vanadium-enzyme complexes."

I. M. Armitage, "2D NMR of cyclosporin-cyclophilin interactions."

R. G. Bryant, "NMR in medicine: From rocks to rubber."

Mammalian Gametogenesis and Embryogenesis

Plymouth State College (N)

N. B. Hecht, chairman; J. Rossant, vice chairman

18 July

M. Simon, "Spermatogenesis—specific gene expression."

J. Dean, "Molecular genetics of the mouse zona pellucida genes."

W. Marzluff, "Expression of specific genes in early mouse embryos."

E. Goldberg, "Molecular biology of lactate dehydrogenase from human testis."

J. McCarrey, "PGK-2 compensates for an inactivated PGK-1 gene in spermatogenesis."

19 July

P. A. Fisher, "Karyoskeletal dynamics during oogenesis and early embryogenesis."

G. Enders, "Spermatogenic cell interactions in the seminiferous epithelium."

W. Reik, "Molecular genetics of genomic imprinting."

C. Sapienza, "Genetics of genome imprinting."

20 July

C. Racowsky, "Regulation of oocyte maturation in the hamster."

J. S. Richards, "Hormonal control of gene expression in rat ovarian follicles and corpora lutea."

B. Moor, "Nuclear-cytoplasmic interactions during maturation and early cleavage of ovine eggs."

J. Eppig, "Oocyte development 'in vitro'."

M. Dym, "Reconstituting seminiferous tubules."

21 July

B. Hogan, "Expression of mouse homeobox genes."

B. Raff, "Tubulin gene expression and control of microtubular function in *Drosophila* spermatogenesis."

D. C. Page, "The sex-determining gene on the Y chromosome."

G. F. Vande Woude, "Expression of the *mos* proto-oncogene in gonadal tissue."

G. R. Martin, "Expression of proto-oncogenes in the early mouse embryo."

22 July

R. Jaenisch, "Retroviruses as probes for mammalian development."

L. Robertson, "Introduction of retroviral sequences into the mouse germline using ES cells."

S. Strickland, J.-D. Vassali, "Molecular determinants of maternal mRNA recruitment in the mouse oocyte."

Medicinal Chemistry

Colby-Sawyer College (N)

W. F. Johns, chairman; R. C. Allen, vice chairman

1 August

B. P. Richardson, "Indole-based agonists and antagonists of 5HT₃ receptors."

W. L. Smith, "Antiserotonin *N*-(1-azabicyclo[2.2.2]oct-3-yl)benzamides."

F. D. King, "5-HT₃ receptor antagonists related to metoclopramide."

G. Olins, "Atriopeptin receptors and metabolism."

P. Bovy, "SAR of atriopeptin analogs."

2 August

R. C. Franson, "PLA₂ in inflammation."

P. B. Sigler, "Crystallography of PLA₂."

E. A. Dennis, "Mechanism and lipocortin/calpactin effects."

V. S. Madison, "Molecular dynamics simulations of PLA₂ substrate binding."

M. H. Gelb, "Phospholipid analogs as probes of PLA₂ catalysis."

E. D. Mihelich, "PLA₂ inhibition by mannoalide analogs."

W. C. Ripka, "Design and synthesis of PLA₂ inhibitors."

3 August

R. A. F. Dixon, "G-protein-linked receptors."

R. Meisfield, "Steroid receptors."

S. Heinemann, "Nicotinic acetylcholine receptor."

G. Smith, "Molecular modeling of G-protein-linked receptors."

W. H. Burgess, "Structure function studies of heparin binding growth factor-I."

A. Sommer, "Human basic fibroblast growth factor."

C. Basilio, "Oncogenes and fibroblast growth factors."

4 August

A. Foster, "Acidic amino acids: Multiplicity of receptors and functions."

P. K. Larsen, "Structural requirements for activation or blockade of EAA receptors."

A. Hutchinson, "Design of a potent, competitive NMDA antagonist."

S. Britcher, "Design of a potent, competitive NMDA antagonist."

5 August

New Horizons: J. A. Bristol, discussion leader

Speakers to be announced.

Biochemistry and Genetic Engineering of Microalgal Products

Salve Regina College

P. Falkowski, chairman; P. Bienfang, vice chairman

22 August

J. Benemann, "Microalgal products."

E. Duerr, "Economic potentials and reality."
 M. Avron, "β-carotene biosynthesis."
 J. Ramus, "Polysaccharides."
 R. Moore, "Pharmaceuticals from microalgae."
 E. Greenbaum, "Hydrogen production."
 Z. Dubinsky, "Lipids."

23 August

E. Laws, "Optimization of products."
 A. Sukenik, "Environmental control of lipids."
 F. G. Plumley, "Molecular biology of nitrogen limitation."
 U. Pick, "Salt tolerance."
 I. Ohad, "Photoinhibition."
 P. Falkowski, "Photoadaptation."

24 August

J. Pirt, "Quantum yields."
 R. Radmer, "Molecular architecture of the photosynthetic apparatus."
 M. Spalding, "Carbon fixation as a rate limiting step."
 D. Turpin, "Respiration."
 Round-table discussion.

25 August

S. W. Chisholm, "Cell cycles."
 L. Mets, "Mutations."
 J. Gallagher, "Sexual cycles in microalgae."
 E. Harris, "Transformation in *Chlamydomonas*."
 D. Bryant, "Phycobilisome gene regulation."
 R. Haselkorn, "Gene promotion in cyanobacteria."
 C. Kuhlmeier, "Control sequences in nuclear genes."

26 August

C. Thomson, "Molecular control of glycerol biosynthesis."
 J.-D. Rochaix, "Nuclear-chloroplast interactions."
 W. Vermaas, "Site-directed mutagenesis."

Microbial Toxins and Pathogenesis

Plymouth State College (N)

P. F. Sparling, chairman; J. Mekeanos, vice chairman

1 August

R. Holmes, "Introduction: New enterotoxins."
 D. Galloway, "ToxR and the genetic regulation of exotoxin A in *Pseudomonas aeruginosa*."
 B. Black, "Regulation of pertussis toxin."
 J. Collier, "Introduction: Diphtheria toxin."
 K. Aktories, "ADP-ribosylating toxins in *Clostridia*."
 R. Welch, "Genetic analysis of hemolysin functional domains."

2 August

T. Meyer, "Introduction: Gonococcal pili and protein II variations."
 H. Seifert, "Mechanisms of gonococcal pilus variations."
 J. Scott, "Regulation of streptococcal M protein expression."

S. Normark, "Introduction: The *Pap* operon in *E. coli*."
 R. Taylor, "V. *cholerae* pili."
 E. Beachey, "Type 1 pili in *E. coli*."

3 August

F. Heffron, "Introduction: *Salmonella* mutants unable to survive in macrophages."
 B. Finley, "Transcytosis of *Salmonella* through polarized epithelial monolayers."
 N. Cianciotto, "*Legionella* mutants altered in intracellular survival."
 M. Horowitz, "Introduction: *Legionella* immunity and iron availability."
 P. Sokol, "Genetics and virulence potential of *Pseudomonas* iron uptake mutants."
 S. Calderwood, "Regulation of Shiga-like toxin by iron."

4 August

T. Braciale, "Introduction: T cell recognition of influenza virus proteins."
 R. Young, "Engineering new T cell-specific mycobacterial vaccines."
 R. Curtiss, "Use of *Salmonella* as a vehicle for antigen presentation."
 B. Fields, "Viruses as models of pathogenesis."

5 August

R. Silver, "Introduction: genetic regulation of capsule production in *E. coli* K1."
 S. Gottesman, "Regulation of colonic acid capsular polysaccharide synthesis."
 A. Chakrabarty, "Regulation of alginate production in *Pseudomonas aeruginosa* during infection in cystic fibrosis."

Chemistry and Physics of Microstructure Fabrication

Brewster Academy

M. W. Geis, chairman; H. Craighead, vice chairman

11 July

V. Donnelly, "UHV studies of laser induced GaAs epitaxial layer growth."
 R. H. Wentrof, "Boron nitride."
 T. R. Anthony, "Metastable diamonds."
 K. E. Bean, "Defect engineering."

12 July

D. A. Miller, "Micro-mechanical devices."
 H. W. Deckman, "Self-organized lithography: Applications and techniques."
 H. Gray, "Field emission cathodes and devices."
 C. Wilkins, "Quantum wires."

13 July

G. Timp, "Electron wave guides."
 M. L. Roukes, "Transport in one-dimensional wires."
 D. C. Shaver, "Processing with focused ion beams and lasers."
 G. Black, "Non-lithographic laser microchemical processing."

14 July

T. P. Smith III, "Capacitance spec-

troscopy of low dimensional systems."

D. Kern, "Electron beam lithography for sub-100-nm device fabrication."
 R. A. Buhrman, "Electrical properties of metallic nanostructures."
 J. Wolf, "Low energy, high current scanning electron microscopy."

15 July

J. N. Randall, "Nanofabrication of zero dimensional quantum dot devices."
 D. K. Ferry, "Super lattice and device-device interactions."

Modeling of Flow in Permeable Media

Plymouth State College (S)

J. B. Bell, chairman; R. Ehrlich, B. Lindquist, and J. Parker, vice chairman

15 August

J. Wilson, A. Gutjahr, "Stochastic characterization of heterogeneous ground-water systems."
 L. Gelhar, "Stochastic analysis of large-scale transport processes."
 L. Smith, "Characterization of transport processes in fractured porous media."
 C. Farmer, "Markovian numerical rocks and the metropolis algorithm."
 J. G. Berryman, "Microgeometry of porous media."

16 August

M. King, "Taylor dispersion of unstable fluid flow."
 C. Dawson, "Numerical methods for transport-dominated flow problems."
 M. Christie, "High resolution simulation of unstable fluid flow in porous media."
 T. A. Hewitt, "Modeling the effects of heterogeneities on oil recovery using fractal geostatistics."
 W. Kinzelbach, "Application of fractal theory to the analysis of spatial heterogeneity and transport processes in ground water."

17 August

R. Flummerfeld, "Mechanistic description of foam displacement in porous media: Phase distribution effects."
 F. Kovarik, "Modeling of foam-induced gas permeability reduction."
 C. Radke, "Pore level basis for foam flow modeling."
 L. Lake, "Wave behavior in geochemical floods."
 R. Winther, "Riemann problems for multicomponent polymer flooding."

18 August

G. M. Homsy, "Numerical simulation of nonlinear viscous fingering."
 Y. C. Yortsos, "Flow stability of displacement processes in porous media."
 L. Orr, "Viscous fingering in heterogeneous porous media."
 T. Watson, "Estimation of relative permeability and capillary pressure from displacement experiments."
 D. Russo, "Analysis of the inverse problem for unsaturated flow in heterogeneous porous media."

19 August

C. Milly, "Hydrological consequences of soil spatial variability."
 F. Molz, "A deterministic approach to modeling transport in heterogeneous media."
 G. Vachaud, "Soil spatial variability as a stochastic process."

Diffraction Methods in Molecular Biology

Salve Regina College

J. Smith, chairman; K. Moffat, vice chairman

18-22 July

Antibody specificity: D. Davies, discussion leader
 Speakers: P. Tulloch, D. Davies, P. Alzari, J. Novotny.
 High quality diffraction data: K. Moffat, discussion leader
 Speakers: R. Feigelson, J. Helliwell, K. Hodgson, G. Bricogne.
 Crystallography and molecular biology: W. Hendrickson, discussion leader
 Speakers: T. Steitz, W. Gilbert, G. Lorimer, C. Craik.
 Molecular design: R. Salemme, discussion leader
 Speakers: P. Goodford, M. Rossmann, R. Stroud, B. Matthews.
 Crystallography and other techniques: R. Henderson, discussion leader
 Speakers: G. Wagner, S. Fuller, S. Opella, R. Burnett.
 Synchrotron experiments: J. Helliwell, discussion leader
 Speakers: J. Hajdu, K. Moffat, A. Pahler, Y. Amemiya, J. Doucet.
 Proteins: nucleic acid complexes: S. Harrison, discussion leader
 Speakers: A. Aggarwal, F. Jordan, H. Nelson.
 New results: C.-I. Branden, discussion leader
 Speaker: D. Wiley, S. H. Kim.
 Megastructures: D. Caspar, discussion leader
 Speakers: A. Yonath, J. Johnson, D. Stuart.

Molecular Genetics

Salve Regina College

S. M. Tilghman, chairman; R. Evans, vice chairman

25-29 July

Organization of the eukaryotic chromosome: M. Olson, L. Silver, D. Page.
 Protein-DNA interactions: T. Steitz, S. Harrison.
 Transcription: R. Tjian, M. Scott, S. McKnight, W. Schaffner, H. Pelham.
 RNA processing: S. Berget, C. Guthrie, M. Wickens.
 The genetics of development: B. Horowitz, R. Lehman, D. Botstein, T. Cline.
 Gene expression during development: S. Tilghman, D. Melton, C. Emerson, P. Leder, I. Greenwald.
 The control of DNA replication: M. Botchan, T. Orr-Weaver, J. Rine.
 Receptors and growth control: R. Ev-

ans, G. Rosenfeld, W. Segraves.
Neurobiology: S. Artavanis-Tsakonas, T. Jessell, J. Hall, M. Chalfie.

Motile and Contractile Systems

Tilton School

D. A. Fischman, chairman; H. L. Yin, vice chairman

11 July

Assembly and exchange of contractile proteins: E. Korn, discussion leader

Speakers: J. Pardee, Y.-L. Wang, K. Weber.

Mitosis: E. D. Salmon, discussion leader

Speakers: S. Inoue, M. Kirschner, R. Goldman.

12 July

Cytoplasmic motors: J. A. Spudich, discussion leader

Speakers: R. Vallee, R. Vale.

Membrane-cytoskeletal interactions: B. Geiger, discussion leader

Speakers: L. Gerace, A. Horwitz.

13 July

Cortical organization and morphogenesis: J. Gerhart, discussion leader

Speakers: R. Keller, G. Oster.

Chemotaxis and cell migration: G. Gerisch, discussion leader

Speakers: S. Zigmond, J. Hartwig.

14 August

Regulation of nonmuscle motility: H. Yin, discussion leader

Speakers: P. Janmey, J. Bryan, T. Pollard.

Poster review: D. A. Fischman, discussion leader

Film Session: Y.-L. Wang, discussion leader

15 July

Molecular biology of contractile protein assembly: L. Leinwand, discussion leader

Speakers: T. Masaki, B. Nadal-Ginard, D. Kiehart.

Multiphoton Processes

Colby-Sawyer College (S)

P. M. Johnson, chairman; P. Lambropoulos, vice chairman

13 June

P. Lambropoulos, "Intense fields and multiphoton processes: Progress and outlook."

P. Dehmer, "Two-color MPI-PES studies of excitation and autoionization in small molecules."

D. Normand, "Resonant multiphoton ionization-dissociation of molecular hydrogen."

A. C. Albrecht, "Femtosecond oscillations in four-wave mixing experiments using incoherent light."

Poster session I.

14 June

M. Ito, "Two-color double resonance laser spectroscopy."

K. Kulander, "Time-dependent theory of multiphoton ionization of multielec-

tron atoms."

S. Anderson, "MPI state selection and studies of state selected ion chemistry."

S. Dixit, "Theoretical studies of resonant multiphoton ionization processes in molecules."

L. Ziegler, "Spontaneous nonlinear resonance Raman scattering in the gas phase."

15 June

R. Freeman, "High intensity multiphoton physics: The role of ponderomotive potentials."

P. Koch, "Ionization experiments in a time-dependent classically chaotic system."

U. Smilansky, "Ionization of high n hydrogen atoms by mono- and bichromatic rf fields."

L. A. Lompre, "Very high order harmonic generation."

Poster session II.

16 June

C. Jungen, "Dynamics of highly excited molecular states."

M. Quack, "The dynamics of coherent IR-multiphoton excitation of molecules."

E. Schlag, "Multiphoton mass spectrometry of large molecules."

K. Smyth, "Multiphoton excitation and production of flame species."

S. Suckewer, "Multiphoton processes for x-ray lasers."

17 June

K. Kimura, "Excited state photoelectron studies of molecules with a VUV laser."

J. Weisshaar, "Gas phase transition metal species electronic structure and state selected chemistry."

R. Compton, "Studies of negative ions using multiphoton excitation."

Muscle: Excitation-Contraction Coupling

Plymouth State College (N)

C. Franzini-Armstrong, chairman; J. D. Potter, vice chairman

13 June

Surface and T tubules channels: E. Stefani, discussion leader

Speakers: A. M. Brown, R. Coronado, R. Latorre, F. Hoffman.

Intramembrane charge movement, Ca and membrane proteins: E. Rios, discussion leader

Speakers: C. S. Hui, H. C. Luttgau, W. Melzer, G. Pizarro, K. P. Campbell.

14 June

Triad composition and Ca release channels: G. Meissner, discussion leader

Speakers: A. Caswell, N. Ikemoto, S. Fleischer, P. Volpe, M. Kasai, K. P. Campbell.

Cytoplasmic calcium: M. Schneider, discussion leader

Speakers: S. M. Baylor, A. Hirota, B. Simon, S. Kurihara.

15 June

Intracellular messengers: C. Hidalgo, S. Donaldson, discussion leaders

Speakers: L. Heilmeyer, J. Vergara, J. R. Blinks, C. Hidalgo.

Calcium and regulatory proteins: C. C. Ashley, discussion leader

Speakers: C. Ruegg, J. D. Potter, Y. Maeda.

16 June

Ca pump: Coupling of catalysis and transport: G. Inesi, discussion leader

Speakers: N. Karin, A. Martonosi, K. Taylor, C. Grisham.

Keynote lecture: P. Horowicz

Comparative aspects: A. V. Somlyo, discussion leader

Speakers: M. Endo, M. Morad, J. Kao, J. Fernandez.

17 June

Molecular cloning of e-c coupling proteins: D. H. MacLennan, M. Tada, discussion leaders

Speakers: A. Schwartz, M. Tada, D. H. MacLennan, E. P. Hoffman.

Mutagenesis

Plymouth State College (N)

F. Hutchinson, chairman; G. Walker, vice chairman

20 June

L. Loeb, "Site-specific incorporation of base analogues."

A. Grollman, "Site-selective mutagenesis."

J. Essigman, "Mutagenesis by modified bases."

L. Samson, "Cell response to DNA alkylation."

G. Margison, "Repair of mutagenic alkylation damage."

21 June

R. Wood, "DNA repair in extracts from human cells."

J. Chen, "Ligase 1 in Bloom's syndrome cells."

J. Hoeijmakers, "Cloning mammalian repair enzymes."

E. Friedberg, "Excision repair in yeast."

J. Game, "Recombinational repair in yeast."

22 June

H. Echols, "SOS mutagenesis."

G. Walker, "Role of UmuDC proteins in mutagenesis."

P. Modrich, "Enzymology of mismatch correction."

M. Radman, "Mismatch repair."

23 June

K. Dixon, "Mutagenesis in SV40-based shuttle vectors."

N. Drinkwater, "Mutagenesis in EB-based shuttle vectors."

M. Calos, "Uses of shuttle vectors."

K. Thomas, "Gene specific mutagenesis by recombination."

R. Holliday, "Inheritance of epigenetic defects."

24 June

C. Ashman, "Mutation in integrated shuttle vector genes."

M. Meuth, "Genomic rearrangements in mammalian cells."

B. Glickman, "Mutation in an endogenous mammalian gene."

Natural Products

New Hampton School

R. K. Boeckman, Jr., chairman; J. V. Heck, vice chairman

25-29 July

The following will speak: J. E. Baldwin, D. L. Boger, M. H. Caruthers, S. J. Danishefsky, T.-J. Lee, S. W. McCombie, G. A. Molander, L. E. Overman, G. D. Prestwich, W. N. Speckamp, G. Stork, R. J. Ternansky, E. Vedejs, R. Wenger, E. Yoshil.

Nondestructive Evaluation

Colby-Sawyer (S)

R. B. Thompson, chairman; B. R. Tittmann, vice chairman

15 August

D. S. Kupperman, "Neutron diffraction in advanced materials."

R. M. White, "Integrated sensors."

J. L. Opsal, "Thermal wave images of active components."

G. H. Westphal, "In process sensors for GaAs crystal growth."

16 August

B. P. Flannery, "High resolution, computer-assisted tomography."

J. N. Gray, "Modeling probability of detection."

H. Reiter, "Microfocus radiography."

J. P. Basart, "Image analysis and feature extraction."

W. G. Heller, "Modern image enhancement practices."

17 August

D. E. Chimenti, "Guided waves in composites."

J. A. G. Temple, "Numerical solutions for inhomogeneity and anisotropy."

A. C. Clarke, Jr., "Characterization of texture."

E. Schneider, "Characterization of stress."

18 August

S. F. Burch, "Defect classification using imaging and pattern recognition."

L. W. Schmerr, Jr., "Expert systems for flaw sizing and classification."

H. M. Burte, "Perspectives for nondestructive measurements."

19 August

A. J. Bur, "Fluorescent monitoring of polymers."

F. Cohen-Tenoudji, "Sensors for process monitoring."

Nuclear Chemistry

Colby-Sawyer College (N)

J. Randrup, chairman; T. L. Khoo, vice chairman

20 June

W. A. Zajc, "First results from AGS."

S. P. Sorenson, "Nuclear stopping power."

To be announced, "J/psi suppression."

J. W. Harris, "Probing the space-time evolution."

J. I. Kapusta, "Perspectives in quark-gluon plasma formation."

21 June

W. Cassing, "Hard-photon and meson production."
H. Nifenecker, "Recent experimental results on hard photons."
I. Tanihata, "Nuclear structure with radioactive beams."
C. Detraz, "Studies of exotic nuclei at GANIL."

22 June

J. Aichelein, "Theory of multifragmentation dynamics."
H. C. Britt, "Fission and multifragmentation at 100 MeV/N."
W. U. Schroeder, "Nonequilibrium energy redistribution in damped reactions."

23 June

K. Danzmann, "A new light boson from heavy-ion collisions?"
P. Paul, "Indication of fission hindrance from GDR decay."
R. P. Kirschner, "Observations of the SN1987A supernova."
S. Solomon, "The Antarctic ozone hole."

24 June

D. Gurreau, "Recent results with 4π neutron detector."
K. D. Hildenbrand, "Disintegration of highly excited nuclei."
L. G. Sobotka, "Dwarf-ball studies of target deexcitation."

Nuclear Physics

Tilton School

M. K. Banerjee, chairman; S. Kowalski, vice chairman

4 July

S. J. Wallace, "Unifying the relativistic NN and N-nucleus interaction."
B. D. Serot, "Chiral symmetry, pions and quantum hadro-dynamics."
G. E. Brown, "Chiral constraints on properties of dense matter."
S. P. Rosen, "Solar neutrino problems."
A. Hahn, "The search for double β -decay in ^{82}Se ."

5 July

S. Dasgupta, "Nuclear dynamics at intermediate energy."
V. Metag, "High energy photons: A sensitive probe for reaction dynamics in heavy ion collisions."
J. Randrup, "Statistical theory of nuclear multifragmentation."
E. Baron, "Prompt explosions in type II supernovae."
F. Thieleman, "Explosive nucleosynthesis in supernovae."

6 July

H. Satz, "Quark deconfinement in nuclear collisions."
H. Gutbrod, "Relativistic nuclear collision studies at CERN SPS with WABO."
M. Chu, " J/ψ suppression in ultrarelativistic heavy ion collision."
J. Applegate, "Cosmological QCD and primordial nucleosynthesis."
G. Fuller, "Quark hadron phase transition in the early universe and primordial nucleosynthesis."

7 July

B. Filippone, J. S. McCarthy, D. Drechsel, titles to be announced.

8 July

R. Pollock, "Cooler rings and their applications to intermediate energy nuclear physics."
T. T. S. Kuo, "Phase transition in nuclear matter."
D. Gogny, "Effective interaction for low energy nuclear physics."

Nuclear Proteins, Chromatin Structure and Gene Regulation

Tilton School

W. T. Garrard, chairman; J. M. Gottesfeld, vice chairman

25-29 July

Molecular structure of protein-DNA complexes: E. M. Bradbury, discussion leader
Speakers: A. Mirzabekov, E. Moudrianakis, M. Ptashne, D. Rhodes, T. Richmond.
Position and topology of chromosome structures: R. Simpson, discussion leader
Speakers: M. Gellert, D. Pettijohn, R. Simpson, A. Travers, J. Wang.
Chromosome propagation and stability: H. Weintraub, discussion leader
Speakers: K. Bloom, W. Earnshaw, M. Grunstein, H. Weintraub, V. Zakian.

Mechanisms of induction and repression I: R. Kornberg, discussion leader
Speakers: L. Guarente, R. Kornberg, M. Ptashne, K. Struhl, F. Winston.
Nuclear proteins and active chromatin I: G. Felsenfeld, discussion leader
Speakers: G. Felsenfeld, G. Hager, T. Koller, A. Sentenac, A. Worcel.
Mechanisms of induction and repression II: T. Maniatis, discussion leader
Speakers: K. Calame, D. Engel, J. Kadonaga, T. Maniatis, B. Wasylyk.
Nuclear proteins and active chromatin II: S. Elgin, discussion leader
Speakers: V. Allfrey, S. Elgin, M. Gorovsky, J. Gottesfeld, G. Schutz.

Mechanisms of induction and repression III: R. Roeder, discussion leader
Speakers: D. Brown, C. Parker, R. Reeder, R. Roeder, C. Wu.
Supramolecular organization: U. Laemmli, discussion leader
Speakers: L. Gerace, B. Hamkalo, U. Laemmli, J. Newport, J. Sedat, D. Agard, C. Smith.

Mechanisms of induction and repression I: R. Kornberg, discussion leader
Speakers: L. Guarente, R. Kornberg, M. Ptashne, K. Struhl, F. Winston.

Nuclear proteins and active chromatin I: G. Felsenfeld, discussion leader
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Speakers: K. Calame, D. Engel, J. Kadonaga, T. Maniatis, B. Wasylyk.
Nuclear proteins and active chromatin II: S. Elgin, discussion leader
Speakers: V. Allfrey, S. Elgin, M. Gorovsky, J. Gottesfeld, G. Schutz.

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Supramolecular organization: U. Laemmli, discussion leader
Speakers: L. Gerace, B. Hamkalo, U. Laemmli, J. Newport, J. Sedat, D. Agard, C. Smith.

Nucleic Acids

New Hampton School

N. Pace and H. Nash, co-chairmen

13 June

I. Tinoco, "Conformation and thermodynamics of RNA elements."
T. Steitz, "X-ray analysis of protein-nucleic acid complexes."
P. Moore, "NMR analysis and site-directed mutagenesis of 5S rRNA."
K. Arndt, "Genetic analysis of transcription factors in yeast."
D. Crothers, "DNA bending and gene activation at the lac promoter."

14 June

S. Goff, "Genetic and biochemical analysis of MuLV integration."
K. Mizuuchi, "In vitro transportation of phage Mu and MuLV."
D. Morisato, "Mechanism and regulation of Tn10 transposition."
C. Nusslein-Volhard, "Determination of polarity and pattern in *Drosophila*."
B. Baker, "Molecular aspects of sex determination in flies."

15 June

R. Schneider, "Adenovirus tripartite leader and translation initiation."
W. Huang, "A novel untranslated sequence in a T4 mRNA."
M. Costanza, "Translational activation of a yeast mitochondrial mRNA."
W. Keller, "Nuclear mRNA processing."
S. Altman, "RNA as a biological catalyst."

16 June

J. Blow, "*Xenopus* chromosomal replication."
H. Weintraub, "Regulation of DNA replication."
T. Kelly, "Replication of SV40 DNA."
W. Earnshaw, "Proteins of the inner and outer centromere."
V. Zakian, "Telomere structures and function."

17 June

L. Guarente, "Transcriptional activation by HAP factors in yeast."
S. Kustu, "Nitrogen-regulated transcription in bacteria."

Order/Disorder in Solids

Colby-Sawyer College (N)

R. O. Simmons, chairman; H. L. Strauss, vice chairman

15 August

P. Launois, "Dynamics of crystalline polyphenyls under pressure."
M. Vallade, "Incommensurate structure of quartz."
G. Zerbi, "Molecular flexibility, order and disorder in chain molecules by optical spectroscopy."
R. G. Snyder, "Relations between the spatial configurations and the vibrational spectra of disordered chain molecules."

16 August

J. Larese, "Neutron scattering studies of the orientational disordering and melting of ethylene monolayers adsorbed on graphite."
M. Bienenfrit, "Two examples of surface molecular motions: Reorientation in adsorbed layers and surface premelting."
R. Clarke, "Kinetic critical studies using synchrotron radiation."
P. Depondt, "Temperature dependence and steric hindrance effects in neopentane: A neutron scattering and molecular dynamics study."

17 August

K. Michel, "Non-ergodic and glassy state in molecular crystals."
L. Lewis, "Molecular dynamics studies of the mixed cyanides."

R. Strat, "The effect of tunneling on a glass transition."
G. Samara, "Pressure effects in multipolar glass systems."
R. LeSar, "Orientational order and melting in dense molecular solids."

18 August

A. Huller, "Tunneling at finite temperatures: A computer simulation."
S. Clough, "Gauge theory, torques, and molecular rotation."
J. D. Swalen, "Structure of Langmuir-Blodgett films: Polymerization and melting."
M. A. White, "Thermal properties of some clathrates."

19 August

A. J. Leadbetter, "Work at ISIS, including work on order-disorder transitions."
A. van der Avoird, "Order and disorder in solid nitrogen and oxygen: an ab initio approach."

Organic Geochemistry

Holderness School

J. M. Hayes, chairman; M. Schoell, vice chairman

15 August

Taxonomically distinctive microbial lipids—modern and ancient: R. Summons, M. Rohmer, D. C. White.
Macromolecules: W. Michaelis, J. Riolo, P. Albrecht, R. Patience.

16 August

Organic geochemistry of lacustrine systems: L. M. Pratt, T. G. Powell, K. Kelts.
Lacustrine and paleoenvironmental studies: J. M. Hayes, A. Y. Huc, J. R. Maxwell.

17 August

Paleoenvironmental studies: S. C. Brassell, M. A. Arthur, J. M. Hayes, F. Prahl.
Precambrian organic geochemistry: G. W. M. Lijmbach, A. H. Knoll, D. M. McKirdy.

18 August

Organic geochemistry of sulfur: J. W. de Leeuw, Z. Aizenshtat, J. Sinningh-Damste, P. Albrecht, H. G. Truuper.
Light hydrocarbons: M. Schoell, F. D. Mango, C. Clayton.

19 August

Thermal processes: P. Sundararaman, P. Ungerer, T. Eglinton.

Organic Reactions and Processes

New Hampton

M. Cooke, chairman; B. Maryanoff, vice chairman

18 July

M. R. Uskokovic, "Enantioselective formation of allylic alcohols and applications in the synthesis of natural products."
I. Kuwajima, "Silicon-directed carbon-carbon bond forming reactions and their synthetic applications."
D. A. Livingston, "A new corticoid process."

19 July

E. Ashby, "Single electron transfer in organic chemistry."

M. Newcomb, "Quantitation of processes occurring in mechanistic probe studies."

L. A. Paquette, "Mechanistic details surrounding ring inversion and bond shifting dynamics in cyclooctatetraenes."

20 July

J. A. Gladysz, "Synthesis and reactions of a chiral transition metal Lewis acid."

S. G. Davies, "Chirality control and molecular recognition in synthesis."

P. L. Fuchs, "Robotics and computers in organic synthesis—in quest of the electronic graduate student."

21 July

D. S. Matteson, "Asymmetric synthesis with boronic esters."

A. Dondoni, "Thiazole mediated strategies in stereoselective acyclic synthesis."

P. G. Schultz, "Novel approaches to the design of biological catalysts."

22 July

P. Wender, "Strategy-level organometallic and photochemical reactions."

L. M. Fuentes, "Design and development of ACE inhibitors."

Organometallic Chemistry

Salve Regina College

R. Eisenberg, chairman; H. Bryndza and T. Baker, co-vice chairmen

27 June

Organometallics in polymerization catalysis: R. R. Schrock, A. Janowicz, H. H. Brintzinger, R. F. Jordan.

Odd electron organometallics/para hydrogen polarization: W. E. Geiger, K. H. Theopold, D. P. Weitekamp, R. Eisenberg.

28 June

Organometallics applied to organic synthesis: R. Noyori, S. L. Buchwald, L. S. Hegeudus, I. Ojima.

Organometallic reactions and mechanisms: R. H. Crabtree, J. Halpern, D. Milstein.

29 June

Organometallics and new materials: M. L. Steigerwald, L. V. Interrante, T. J. Lynch, J. S. Bradley.

New techniques and methods of analysis: P. S. Pregosin, J. J. Turner, C. M. Friend.

30 June

Atom transfer reactions and related systems: J. Groves, P. Shapley, R. G. Finke, J. M. Mayer.

Redox and photochemistry: J. Kochi, P. C. Ford.

1 July

Polynuclear systems: A. L. Balch, J. Keister, A. Wayda.

Oscillations and Dynamic Instabilities in Chemical Systems

Plymouth State College (S)

J. Ross, chairman; K. C. Showalter, vice chairman

18 July

P. de Kepper, "Temporal processes."

K. C. Showalter, "Temporal processes."

C. Vidal, "Spatial processes."

P. Ortoleva, "Spatial processes."

19 July

R. Kapral, "Theory."

G. Nicolis, "Theory."

G. Ertl, "Heterogeneous reactions."

J. L. Hudson, "Electrochemical reactions."

20 July

I. Proccaccia, "Theory."

Short presentations.

21 July

A. T. Winfree, "Biological phenomena."

To be announced, "Biological phenomena."

To be announced, "Chemical engineering applications."

22 July

Short presentations.

Particle-Solid Interactions

Holderness School

J. A. Davies, chairman; M. L. Swanson, vice chairman

11 July

R. Averback, "High density cascades and spike concepts."

A. E. DeVries, "Evidence for spike effects in sputtering."

Y. T. Cheng, "Fractal aspects of collision cascades."

A. Sorensen, "Antiproton-solid interactions."

P. Schultz, "Positron-solid interactions."

12 July

J. Greene, "Beam-assisted sputter deposition."

D. Armour, "Low-energy ion deposition."

J. S. Williams, "Beam-assisted recrystallization using MeV ions."

J. Budnick, "Characterization of high T_c materials."

G. Clark, "Ion bombardment effects in high- T_c materials."

13 July

J. Corbett, "Survey of defect interactions in Si."

B. B. Nielsen, "Channeling studies of defects in Si."

T. Wichert, "PAC studies of defect interactions in Si."

C. Cohen, "Atomic collision studies using GeV heavy ions."

To be announced, "High energy (MeV) ion implantation."

14 July

J. W. Rabalais, "Chemical reactions of low energy ions with surfaces."

To be announced, "Low-energy highly stripped ions."

J. Forster, "Backscattering studies of liquid interfaces."

I. Tsong, "STM studies of interfaces in non-vacuum environments."

15 July

W. K. Chu, "Coincidence spectrometry."

To be announced, "Proton energy loss spectroscopy."

Peptide Growth Factors

Salve Regina College

H. Moses, chairman; G. Gill, vice chairman

7 August

S. Cohen, "Epidermal growth factor."

8 August

Growth factors and receptors I: G. Gill, discussion leader

Speakers: O. Rosen, R. Williams, C. Rettenmier.

Growth factors and receptors II: J. Van Wyk, discussion leader

Speakers: D. Clemmons, A. Saltiel.

9 August

Regulation of growth factor inducible genes: J. Pledger, discussion leader

Speakers: C. Stiles, I. Verma.

Transforming growth factor- β family: H. Moses, discussion leader

Speakers: J. Massague, R. Derynck.

10 August

Interferons, TNFs and other growth inhibitors: J. Vilcek, discussion leader

Speakers: G. Todaro, P. Lengyel.

Growth factors and their receptors in development: W. Gelbart, discussion leader

Speaker: D. Melton.

11 August

Signal transduction and the *ras* oncogene: J. Feramisco, discussion leader

Speakers: F. McCormick, R. Bell, S. Aaronson.

Oncogenes as putative growth factors and receptors: M. Barbacid, discussion leader

Speakers: G. Vande Woude, C. Basilio.

12 August

Recessive genes and growth control: W.-H. Lee, discussion leader

Speakers: B. Howard, E. Stanbridge.

Periodontal Diseases

Plymouth State College (N)

A. Polson, chairman; R. Rannev, vice chairman

27 June

Anatomy and physiology: A. Melcher, discussion leader

Etiology: K. Kornman, discussion leader

28 June

Pathogenesis: protective responses: R. Genco, discussion leader

Pathogenesis: biological response modifiers and tissue destruction: H. Birkedal-Hansen, discussion leader

29 June

Diagnosis: R. Rannev, discussion leader

Plenary session

30 June

Therapy: Anti-infective: R. Caffesse, discussion leader

Modulation of host response: A. Polson, discussion leader

1 July

Regeneration: J. Caton, discussion leader

Photonuclear Physics

Plymouth State College (N)

B. Mecking, chairman; J. Dubach, vice chairman

8–12 August

W. Polyzou, "Relativistic treatment of the few-body problem."

E. De Sanctis, "Critical review of deuteron photodisintegration data."

R. Holt, "New results from deuteron photodisintegration at high energies."

S. Krewald, "Electroexcitation of the giant resonance."

T. Knoepfle, "($e, e'p$) and ($e, e'\alpha$) measurements in the region of the giant resonances."

L. Cardman, "($e, e'n$) coincidence studies in ^{208}Pb ."

H. Blok, "New experimental results from high resolution ($e, e'p$) measurements."

R. Lourie, "The ($e, e'p$) reaction in the continuum."

W. Van Orden, "What do we learn from complete ($e, e'p$) measurements?"

W. Hersman, "What's new in high spin states?"

C. Papanicolas, "Nuclear and nucleon structure studies using ($e, e'\gamma$)."

C. W. de Jager, "2 hw excitations in ^{15}N ."

R. Owens, "New results from (γ, np) on helium, lithium and carbon."

J. Smith, "Onset of the quasi-deuteron mechanism in ^3He ."

D. Branford, "High resolution (γ, p) measurements on C and Al."

E. Beise, "Good resolution (γ, n) measurements on ^{16}O at medium energies."

L. Tiator, "What have we learned from pion production on nuclei?"

J. Ahrens, "Compton scattering on the proton."

N. de Botton, "Search for three-body forces in photon and pion induced reactions."

V. Burkert, "Electromagnetic excitation of the nucleon resonances."

D. Day, "Inelastic electron scattering at $x > 1$."

First results from new facilities.

Future facilities for electromagnetic nuclear physics.

An application blank for attendance at the Gordon Research Conferences may be found on page 1180.

Physico-Chemical Aspects of Photosynthesis

Holderness School

C. A. Wraight, chairman; W. A. Cramer, vice chairman

4 July

E. Engleman, "Membrane protein folding."

D. C. Rees, "Reaction center-membrane interactions."

M. Schiffer, "Rb. sphaeroides RC structure."

D. Holten, "Primary events in mutant RCs."

P. L. Dutton, "Energetic influences on quantum yields."

5 July

S. Boxer, "Stark effect spectroscopy and hole-burning in RCs."

A. J. Hoff, "Magneto-optical spectroscopy of photosynthetic systems."

B. Hoffman, "Intramolecular electron transfer."

P. Wolynes, "Electron and nuclear tunneling in proteins."

6 July

K. Sharpe, "Electrostatic calculations on proteins."

M. Y. Okamura, "Quinone-binding and function in RCs."

H. Zuber, "Structure and function in light harvesting complexes."

R. van Grondelle, "Excitation transfer in bacterial antenna systems."

7 July

P. Mathis, "Fast kinetics in PSI and PSII complexes."

M. Thurnauer, "Structure and spectroscopy of PSI and PSII primary donors."

M. E. Michel-Bayerle, "Electron transfer in vitro and in vivo."

G. Closs, "Electron and energy transfer systems."

8 July

H. T. Witt, "Optical spectroscopy of water splitting."

G. Brudvig, "Magnetic resonance studies of the oxygen evolving complex."

Physical Electrochemistry

Colby-Sawyer College (S)

J. R. Macdonald, chairman; J. O'M. Bockris, vice chairman

8 August

D. Kolb, "The structure of the electrochemical double layer: An experimental approach."

R. Guidelli, "Molecular models of metal-water interfaces."

W. Schmickler, "Adsorption on metal electrodes."

D. Henderson, "Theoretical studies of electrolytes near charged surfaces."

9 August

J. W. Schulze, "Charge transfer in organic electrosorbates."

J. Ulstrup, "Environmental modulation and stochastic effects in charge transfer theory."

U. Stimming, "Electrochemical reactions at low temperatures."

J. T. Hupp, "What optical electron transfer reactions can teach us about electrode kinetics."

10 August

H. D. Abruna, "X-rays as probes of electrochemical interfaces."

T. L. Ferrell, "Scanning-tunneling electron microscopy and spectroscopy."

W. N. Hansen, "Some recent measurements of the electrochemical double layer."

R. C. Kainthla, "Spectroscopic ellipsometry of the solid-solution interface."

11 August

T. M. Devine, "Surface enhanced Raman scattering studies of creep of metals in aqueous electrolytes."

D. D. Macdonald, "Modeling the passive state."

R. M. Latanision, "The electrochemistry of advanced engineering materials."

R. L. Smith, "The electrochemistry of formation, and morphology of porous silicon."

12 August

H. Wroblowa, "Factors affecting re-chargeability of manganese oxide electrodes."

A. K. Vijh, "Electrochemical physics."

Physical Metallurgy

Kimball Union Academy

F. Spaepen, chairman; J. C. Williams, vice chairman

18-22 July

F. Larche, "Coherent phase diagrams."

W. C. Johnson, "Coherent equilibrium in thin film systems."

D. N. Yoon, "Coherency strain effects on interface stability."

G. B. Stephenson, "Effects of stress and flow on interdiffusion."

W. L. Johnson, "Crystal-to-glass transformations in metals."

A. L. Greer, "Undercooled liquids: Amorphization and inverse melting."

G. Martin, "Phase stability in alloys under irradiation."

J. Y. Tsao, "Melting and freezing of Si far from equilibrium."

J. Ray, "MD simulation of phase transitions in Si."

D. Follstaedt, "Rapid melting of metastable materials."

W. Boettinger, "Microstructure and phase selection in solidification."

M. J. Aziz, "From diffusion-controlled to diffusionless solidification."

G. B. Olson, "Coupled diffusive-displacive transformations."

P. Voorhees, "Ripening of particles."

H. J. Frost, C. V. Thompson, "Grain growth in thin films."

J. Glazier, "Dynamics of two-dimensional soap froths."

A. L. Loeb, "Pentagrammar: Symmetry and modularity."

H. Gleiter, "Structure and stability of nanometer-sized materials."

A. Banerjee, "Continuum elasticity analysis of the supermodulus effect."

A. Jankowski, "Strain wave effects in metallic multilayers."

Cellular and Molecular Biology of the Plant and Fungal Cytoskeleton

Proctor Academy

B. A. Palevitz, chairman; M. V. Parthasarathy, vice chairman

8 August

D. Fosket, "Biochemistry of plant microtubules."

T. Hogetsu, "Microtubules order in *Spirogyra*."

J. Aist, "Mitotic microtubules in *Fusarium*."

J. Hyams, "Actin in fission yeast."

R. Williamson, "Actin assembly in charophytes."

9 August

A. Hardham, "The cytoskeleton in regenerating mougeotia."

W. Herth, "Membranes, cytoskeleton and cellulose deposition."

M. Cresti, "The cytoskeleton of pollen tubes."

A. Adams, "Genetics of the actin cytoskeleton in yeast."

A. DeLozanne, "Myosin gene targeting in *Dictyostellium*."

10 August

P. Snusted, "Plant tubulin genes."

B. Oakley, "Molecular genetics of tubulin in *Aspergillus*."

T. Burland, "Multiple tubulin genes in *Physarum*."

A. Bajer, "The cytoskeleton in dividing *Haemanthus*."

N. R. Morris, "Mitosis genes in *Aspergillus*."

11 August

H. Shibaoka, "Cell wall effects on the cytoskeleton."

M. J. Saunders, "Cytokinin effects on the cytoskeleton."

T. Shimmen, "Ca²⁺ regulation of streaming in pollen tubes."

M. Fechheimer, "Actin binding proteins from *Dictyostellium*."

F. Solomon, "Cytoskeleton-associated proteins in yeast."

12 August

J. Rosenbaum, "Flagellar regeneration in *Chlamydomonas*."

H. Fukuda, "The cytoskeleton in xylem differentiation."

M. Melkonian, "The cytoskeleton in algal development."

Plant Molecular Biology

Proctor Academy

R. Meagher, chairman; R. Beachy, vice chairman

13 June

H. Saedler, "Genetic engineering of a new pigmentation pathway in petunia."

K. Halbrock, "Structure and signal specific expression of the genes encoding phenylpropanoid metabolism."

A. Gerats, "Structure and expression of the dihydroflavonol reductase

genes in petunia hybrida."

T. Slabas, "Understanding the synthesis and regulation of lipids in plants."

P. Kolattukuty, "Attempts to alter lipid composition by genetic engineering."

14 June

T. Bissling, "Involvement of nodulin genes in early steps of legume root nodule formation."

C. Sengupta-Gopalan, "Nodulin genes in soybeans: Their isolation, characterization, and regulation."

G. Coruzzi, "Molecular analysis of the expression of genes encoding the chloroplastic and cytosolic glutamine synthetase."

G. Fink, "The control of amino acid biosynthesis in *Arabidopsis*."

M. Schuler, "Plant intron processing."

J. Strommer, "Untranslated regions of RNA transcripts affecting the level of gene expression in maize."

J. Silverthorne, "Tissue specific instability of SSU and mRNA in *Lemna g.*"

15 June

G. Kishore, "Protein engineering of EPSP synthase and its application for engineering herbicide tolerance in plants."

B. Mazur, "Engineering acetolactate synthase genes for herbicide resistance."

T. Hall, "Glycoforms of phaseolin: Structure, targeting and stability."

R. Fischer, "Regulation of gene expression by ethylene."

E. Meyerowitz, "Genetic control and genes regulating development in *Arabidopsis*."

P. Green, "Trans-acting factors for regulated transcription."

16 June

M. Clegg, "Analysis of plant molecular evolution."

R. A. Flavell, "The coevolution of regulatory systems for control of rRNA gene expression."

F. Ausubel, "Cloning and characterization of *Arabidopsis thaliana* telomeres."

E. Signer, "Homologous recombination in *Arabidopsis*."

17 June

R. Beachy, "Molecular mechanisms of engineered resistance to TMV."

D. Shah, "Analysis of virus resistance in transgenic plants."

M. Van Montague, "Attempts to engineer new specificity for the insecticidal protein from *Bacillus thuringiensis*."

Plant Senescence

Colby-Sawyer College (S)

J. E. Thompson, chairman; A. K. Mattoo, vice chairman

4 July

H. Woolhouse, "New perspectives on the biochemical and genetic regulation of senescence."

T. Griffiths, "*Neurospora* senescence plasmids and their interaction with mitochondrial DNA."

L. Belcour, "Genetic manipulation of senescence in *Podospora*."

J. St. John, "Turnover of lipid molecular species: Its implications for senescence."

R. Saftner, "Changes in cellular compartmentation during senescence."

5 July

A. K. Mattoo, "Protein metabolism in thylakoids."

S. Gepstein, "Immunological detection of protein catabolism."

A. Kanellis, "Effect of low oxygen on enzymatic activity and gene expression during senescence of fruits."

M. Tucker, "Regulation of cellulase gene expression in abscission zones."

6 July

W. Woodson, "Gene expression and protein synthesis in senescing flower petals."

L. Nock, "Protein turnover and gene expression in senescing leaves."

W. Gruissem, "Transcription and regulation of chloroplast genes during senescence."

E. Goldschmidt, "Ethylene-mediated induction of chlorophyllase."

A. Mehta, "A unique wound-induced form of ACC synthase in tomatoes."

7 July

B. Fischer, "Ethylene-induced changes in gene expression in ripening tomato fruit."

C. Brady, "Genetic regulation of polygalacturonase in ripening fruit."

A. Bennett, "Processing and secretion of ripening enzymes."

A. K. Chatterjee, "Genetic regulation of pectolytic enzymes."

J. Ecker, "Ethylene-induced pathogenic proteins."

8 July

B. Hiatt, "Practical applications of antisense message."

R. Broglie, "Cloned genes: Agents for biotechnological advance."

G. Tucker, "Genetic manipulation of horticultural crops."

Plasma Chemistry

Tilton School

A. Garscadden, chairman; R. L. Munz, vice chairman

15 August

H. Winters, "Plasma surface interactions."

J. Goodwill, "Metals production via thermal plasma."

P. Bachman, "Diamond thin films."

S.-I. Tachi, "Low temperature RIE and microwave plasma etching."

16 August

M. Mandich, "Silicon cluster studies."

S. Girschick, "Nucleation and growth in thermal plasmas."

B. Bagley, "Plasma oxidation of the high temperature superconducting perovskites."

Poster session.

17 August

R. W. Liebermann, "Thermal plasma models and codes."

J. P. Boeuf, "RF discharge models."

M. Kushner, "Models of plasma deposition and etching."

M. G. Drouet, "Electrode erosion studies."

M. Hirose, "Plasma deposition and coatings."

18 August

A. Harrus, "Plasma assisted deposition and device technology."

G. Oehrlein, "R.I.E. surface damage to electronic materials."

M. Geis, "Diamond-based devices."

J. T. Verdeyen, "Practical microwave diagnostics of plasma reactors."

W. Roman, "Diagnostics of processing plasmas."

19 August

Y. Manabe, "Thin films deposition using ECR plasma."

G. Messing, "Fine powder synthesis."

Polymer Physics

Proctor Academy

W. W. Graessley, chairman; E. J. Kramer, vice chairman

18 July

E. L. Thomas, "Micellar arrangements in blends of block copolymers and homopolymers."

L. Leibler, "Organization and phase separation in systems containing block copolymers."

T. Kotaka, "Rheology of block copolymer solutions and blends."

L. Mandelkern, "Structure and properties of crystalline copolymers."

A. Keller, "Recent studies of *N*-alkane chain folding."

19 July

Invited posters.

R. Matheson, "Evidence and implications of chain elasticity in polymeric glasses."

J. Schrag, "Local modification of solvent by solute as revealed by the conformational dynamics of polymers in solution."

20 July

T. A. Witten, "Effect of association on structure and dynamics of ionomer solutions."

M. Moller, "Reversible star formation and gelation of end functionalized polymers."

J. Klein, "Surface forces from end-grafer polymers."

S. I. Stupp, "Liquid crystal polymers in external fields."

G. C. Berry, "Blends of rod-like and flexible polymers: phase equilibria and rheology."

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G. C. Berry, "Blends of rod-like and flexible polymers: phase equilibria and rheology."

21 July

G. Marrucci, "Doi-Edwards revisited: Chain stretching."

K. Kremer, "Crossover from Rouse to reptation, a molecular dynamics study."

M. Doi, "Recent developments in reptation theory."

M. A. Winnik, "Fluorescence spectroscopy: What it can and cannot do for polymer physics."

22 July

M. Antonietti, "Tracer diffusion and

interdiffusion in binary polymer blends."

T. P. Russell, "Reflection of x-rays and neutrons from thin polymer films."

Polymers

Colby-Sawyer College (N)

L. D. Taylor, chairman; J. P. Kennedy, vice chairman

27 June

T. Saegusa, "New concepts of polymerization."

D. Tomalia, "Star-burst dendrimers: Molecular control of size, shape and surface."

B. Thill, "Poly-ethyloxazoline: Synthesis, structure and properties."

D. Meier, "The polymer-polymer interface."

M. Green, "The macromolecular stereochemistry of polyisocyanates."

28 June

L. Errede, "The mechanism of polymer swelling on a molecular basis."

M. Litt, "PVT treatment of gaseous diffusion in polymers."

U. Suter, "Polymers and polymerization in supercritical fluids."

F. Winnik, "Solution properties of pyrene labeled hydroxypropyl cellulose."

M. Rubinstein, "A discretized version of the reptation model of entangled polymer dynamics."

29 June

N. Gaylord, M. Refojo, "The polymer chemistry of contact lenses: Permeable rigid structures-permeable hydrogels."

J. Salamone, C. Boerner, "Polymer lens inserts as viewed by the chemist and surgeon."

G. Benedek, "Phase transitions in solutions of macromolecules—a mechanism of cataract formation."

D. Tirrell, "Genetic approaches to polymer syntheses."

R. Zand, "Aromatic heterocyclic containing polymers: Electrooptical behavior."

30 June

P. Luisi, "Macromolecules solubilized in water-oil: Microemulsion gels."

A. Hoffman, "Synthesis and properties of immobilized enzymes using LCST vinyl monomer-vinyl enzyme conjugates."

I. Bronstein-Bonte, B. Edwards, "Novel enzy-luminescence."

H. Khorana, "Photoinduced proton pumping in bacteriorhodopsin."

1 July

R. Faust, "Living carbocationic polymerization."

F. Wudl, "Recent events in conducting polymers."

E. Shchori, "Radiation curable microporous coatings."

Proteins

Salve Regina College

L. M. Gierasch, chairman; J. Hermans, vice chairman

20 June

J. Ponder, "Tertiary templates for protein design."

J. Fetrow, "Loops in globular proteins."

R. Tilton, "Cavities in proteins by gas binding."

M. Mutter, "Construction of artificial proteins."

G. Rose, "Helices in peptides and proteins."

21 June

R. Fletterick, "Enzyme studies by mutagenesis."

A. Warshel, "Simulations of serine and cysteine proteases."

M. James, "Molecular recognition among proteinases."

T. Keiderling, "Vibrational circular dichroism."

A. Gronenborn, "Two-dimensional NMR of proteins."

22 June

A. Ciechanover, "Ubiquitin-dependent protein breakdown."

S. Clarke, "Repair mechanisms for aging proteins."

M. Eilers, "Protein unfolding during transport into organelles."

A. Stock, "Structure of CheY."

23 June

L. Ellis, "Structure-function of the insulin receptor."

N. Unwin, "Receptors and channels."

M. Schimerlik, "Atrial muscarinic acetylcholine receptor."

D. Wiley, "Structures of membrane proteins."

24 June

S.-H. Kim, "Ras protein crystal structure."

F. Jurnak, "Structural studies of EF-Tu."

S. Masters, "Mutational analysis of G proteins."

Proteoglycans

Proctor Academy

L. Rosenberg, chairman; T. Oegema, Jr., vice chairman

27 June

T. Hardingham, "Functional properties of core protein domains."

D. Heinegard, "Molecular biology of the cartilage-specific proteoglycans."

M. Boudon, "Recombinant DNA analysis of proteoglycan biosynthesis and function."

B. P. Toole, "Hyaluronate-cell interactions in limb development."

E. Turley, "Interactions of hyaluronate-binding protein and sarc-oncogene kinase."

28 June

M. Hook, "Cell-associated proteoglycans and cell adhesion."

D. Cunningham, "Proteoglycan protease inhibitors at the cell surface."

M. Yanagishita, "Cell surface proteoglycans."

H. Kresse, "Synthesis, secretion and biochemical properties of dermatan sulfate proteoglycans."

A. Oldberg, "Primary structure of DS-PGI and DS-PGII core proteins from cDNA sequences."

29 June

M. Gordon, "Interactions of granulocyte-macrophage colony-stimulating factor with glycosaminoglycans."

R. Stevens, "Secretory granule proteoglycans."

B. Schick, "Megakaryocyte and platelet proteoglycans."

K. Kimata, "Structure of basement membrane proteoglycans."

J. Graf, "Structure-function relationships in laminin."

D. Noonan, "Cloning the basement membrane proteoglycan."

30 June

E. Ruoslahti, "Gene transfer studies of structure-function relationships in proteoglycans."

M. Ishihara, "Correlations of nuclear heparan sulfate levels in cell division."

S. Cullen, "Ia-associated proteoglycan."

M. Rosbash, "Molecular genetics of biological clocks."

1 July

T. Wight, "Modulation of proteoglycan metabolism by vascular cells."

J. Marcum, "Endothelial cell proteoglycans."

D. Mosher, "Role of cell surface proteoglycans in thrombospondin binding and degradation."

Proteolytic Enzymes and Their Inhibitors

Holderness School

P. Harpel, chairman; A. Barrett, vice chairman

13 June

C. Brenner, "Metalloproteinase gene expression in early development."

L. Matrisian, "Molecular biology of transin-stromolysin."

W.-T. Chen, "Membrane-associated proteinases."

K. Suzuki, "A novel isozyme of calcium activated protease."

D. Goll, "Regulation and function of calpain."

T. Hiwasa, "Possible role of *ras* protease inhibitors in transformation."

14 June

B. Wiman, "Plasminogen activator inhibitor and heart disease."

D. Belin, "Control of PAI secretion in macrophages."

B. Knudsen, "PAI in subcellular matrix."

P. Mignatti, "Proteases and tumor invasion."

R. Lerner, "Antibodies as enzymes."

E. Haber, "Plasminogen activator-antibody constructs."

P. Harpel, "Assembly of the plasmin system on IgG."

15 June

M. Courtney, "Genetic engineering of α_1 -proteinase inhibitor."

L. Sottrup-Jensen, "The family of α_2 -macroglobulins."

S. Pizzo, " α_2 -macroglobulin."

G. Salvesen, "Cloning of neutrophil elastase and cathepsin G."

D. Perlmutter, "Expression of neutrophil elastase and inhibitor in monocytes."

J. Weitz, "Neutrophil elastase activity in vivo."

16 June

C. Esmon, "Protein C pathway."

R. Rosenberg, "Structure of thrombomodulin."

F. Walker, "Interactions between Protein S and plasma binding proteins."

17 June

S. Olson, "Heparin-antithrombin interaction."

D. Carney, "Mechanisms of thrombin mitogenesis."

P. Johnson, "Cloning of hirudin."

Chemistry and Biology of Pyrroles

Brewster Academy

M. A. Correia, chairman; S. I. Beale, vice chairman

25 July

B. K. May, "5-aminolevulinate (ALA) synthase."

D. Bishop, "Isolation and characterization of human cDNA for ALA-synthase."

R. Labbe-Bois, "The last steps in yeast heme biosynthesis."

P. Ortiz de Montellano, "Peroxidative protein heme modifications."

G. A. Mauk, "Site-specific mutagenesis of Cyt c and Cyt c peroxidase."

M. H. Gold, "Extracellular peroxidases involved in lignin degradation."

26 July

J. T. Groves, "Bridged iron-porphyrin-N-oxides."

V. Ullrich, "Prostacyclin and thromboxane synthase: Role of the heme-sulfur linkage."

T. G. Traylor, "Reactions of hydroperoxides and hydrogen peroxide with Fe³⁺-porphyrins."

J. Traugh, "Heme-regulation of hemoglobin synthesis."

U. Muller-Eberhard, "Heme and porphyrin-binding proteins."

27 July

W. Rudiger, "Tetrapyrrole-protein interaction in the plant photoreceptor phytochrome."

W.-Y. Wang, "Biosynthesis of the universal tetrapyrrole precursor ALA by the five-carbon pathway."

J. C. Lagarias, "Biosynthesis of the tetrapyrrole chromophore of phytochrome, the plant photomorphogenic pigment."

B. Grandchamp, "Molecular biology of PBG deaminase."

J. P. Kushner, "Mutations at the uroporphyrin decarboxylase locus in familial porphyria cutanea tarda."

28 July

S. Shibahara, "Trans-acting factors for the heme oxygenase gene."

R. F. Bonnett, "Propentdyopents:

Chemical and biological aspects."

G. S. Drummond, "Suppression of hyperbilirubinemia by the heme-oxygenase inhibitor, tin-protoporphyrin." A. F. McDonagh, "A light lecture on bilirubin."

29 July

C. D. Fitch, "Ferroprotoporphyrin IX: Role in resistance to malaria and chemotherapy."

K. M. Smith, "Chlorophylls from green and brown sulfur bacteria."

C. K. Chang, "Structure and chemistry of novel prosthetic hemes in bacterial cytochromes."

Radiation Chemistry

Salve Regina College

S. Lipsky, chairman; A. D. Trifunac, vice chairman

11 July

Y. Gauduel, "Femtosecond reactivity of electrons in aqueous media."

T. Kondow, "Formation of cluster anions by collision of High-Rydberg rare gas atoms."

K. H. Bowen, "Photodetachment spectroscopy of water negative ion clusters."

P. J. Rossky, "The hydrated electron: quantum simulation of structure, spectroscopy, and dynamics."

12 July

J. K. Baird, "Moments of the electron range function and the electronic field dependence of the geminate ion escape probability."

M. Tachiya, "Breakdown of the Onsager and Debye theories of diffusion-controlled reactions."

A. Hummel, "Computer simulation calculation of multiple ion-pair kinetics."

A. C. Albrecht, "The multiphoton probing of preionization states and ionization in molecular liquids."

R. Voltz, "Ionic processes in organic matter under high energy photon and particle excitation."

13 July

I. Steinberger, "Electron energies in simple fluids."

P. Krebs, "Transport and ground state properties of excess electrons in polar liquids."

B. J. Berne, "The structure and dynamics of excess electrons in simple fluids."

T. W. Scott, "Picosecond dynamics of elementary chemical reactions."

T. Meyer, "Medium effects on electron transfer reactions."

14 July

M. C. Sauer, "Excitation mechanisms in the radiation chemistry of hydrocarbons."

S. Tagawa, "Picosecond pulse radiolysis studies of liquid saturated hydrocarbons."

R. Weston, "Vacuum UV fluorescence studies of hydrocarbons."

Poster session.

15 July

L. Sanche, "Ultrafast events in radiation chemistry."

J. A. LaVerne, "Track effects in heavy particle radiolysis."

Radical Ions

Brewster Academy

M. A. Fox, chairman; G. Closs, vice chairman

27 June

K. Peters, "Role of long-range electron transfer in radical ion formation of trans-Stilbene with olefins and the resulting ion pair dynamics."

C. Harris, "Fundamental studies of radicals in liquids on the femtosecond time scale."

N. C. Yang, "Radical ions in exciplexes."

D. Denny, "A consideration of mechanisms for radical-nucleophile substitution reactions."

G. Russell, "Some examples of electron transfer in the reactions of organometallics."

28 June

A. Davies, "Generation, structure, and reactions of radicals and radical ions."

M. Thurnauer, "Transient radical ions in photosynthesis."

K. Mobius, "ENDOR studies related to photosynthesis—a progress report."

T. Kakitani, "Interrelationship among dielectric saturation, coordinated solvent mode, and energy gap law of electron transfer reactions."

R. A. Marcus, "Aspects of electron transfer theory and experiment."

29 June

T. Bally, "The electronic structure of organic radical ions in cryogenic media."

T. Clark, "Lubrication of reactions using radical cation character."

S. Farid, "The role of geminate radical ion pairs in electron transfer photochemistry."

30 June

L. Kispert, "Carotenoid cation radicals."

J. Bolton, "Solvent and temperatures effects in intramolecular photochemical electron transfer in Porphyrin-Quinone molecules."

P. Neta, "Radical ions of metalloporphyrins."

H. Lund, "Electron transfer from electrochemically generated anion radicals and other intermediates."

M. Szwarc, "Radical ions—personal reminiscences."

1 July

L. Tolbert, "Deprotonation of hydrocarbon radical cations: A key branch point in chemical and biochemical oxidation."

F. Williams, "ESR studies of organic radical cation rearrangements in frozen matrices."

D. Tyler, "19-electron organometallic radicals."

Chemicals and Materials from Renewable Resources

Colby-Sawyer College (S)

H. I. Bolker, chairman; H.-M. Chang, vice chairman

25 July

B. Monties, "Biochemical views on lignins."

N. G. Lewis, "NMR studies on lignin biosynthesis."

G. Leary, "Solid-state NMR spectroscopy of lignin."

L. Landucci, "Liquid-state NMR spectroscopy of lignin."

D. R. Dimmel, "Electron-transfer reactions in delignification."

26 July

R. Atalla, "Recent results from Raman spectroscopy of wood components."

D. Fengel, "Solid-state cellulose—a variety of phenomena."

F. Horii, "NMR characterization of solid cellulose."

C. Heitner, "Bleaching TMP and CTMP."

T. J. McDonough, "Cell-wall sulphur distribution in sulfonated pine latewood."

27 July

G. Gellerstedt, "Chemical changes in lignin during high-yield pulping."

W. G. Glasser, "Lignin modification with propylene oxide."

H.-M. Chang, "Residual lignin in pulps."

M. C. Kuo, "Cellulose organic esters."

S. Barkalow, "Cellulose acetate from mechanical pulps."

28 July

D. N.-S. Hon, "Photochemistry of cellulose."

J. L. Minor, "Cell wall polysaccharides."

E. Sjostrom, "Carbohydrate degradation products in alkaline pulping liquors."

I. S. Goldstein, "The state of lignin in wood."

29 July

A. Castellan, "Brightness reversion: photochemistry of lignin models."

D. W. Reeve, "Reactions of pulp with peroxides."

J. Meister, "Graft copolymers of lignin."

Reproductive Tract Biology

Brewster Academy

R. M. Roberts, chairman; J. H. Clark, vice chairman

4 July

S. C. Bell, "Secretory proteins of the human uterine endometrium and decidua: Characterization and function."

R. D. Geisert, "Development and survival of pig blastocysts in altered uterine environments."

T. Kennedy, "Role of pituitary hormones in uterine decidualization and implantation in the rat."

E. Milgrom, "The mammalian progesterone receptor: Structure and function."

R. Brenner, "Immunocytochemistry of estrogen and progesterone receptors

in the monkey reproductive system."

5 July

P. M. Wassarman, "Role of carbohydrates in gamete recognition during mammalian fertilization."

D. W. Hamilton, "Proteins and glycoproteins in the epididymis."

D. D. Carson, "Glycoprotein synthesis and function in embryo-uterine interactions."

S. Higgins, "Androgen regulation of gene expression in seminal vesicle and prostate epithelium."

J. Isaacs, "Function and significance of programmed cell death in the prostate."

6 July

P. Donahoe, "The role of Mullerian inhibiting substance in normal reproductive development."

K. Flanders, "Transforming growth factor- β : A multifunctionary regulatory peptide with actions in the reproductive system."

T. Mason, "Paracrine and endocrine actions of inhibin and activin."

J. W. Pollard, "Steroid regulation of colony-stimulating factor-1 (CSF-1) in uterine epithelium and the possible role of CSF-1 in placental formation."

V. E. Quarumby, "Androgen regulation of proto-oncogene expression in the prostate gland."

7 July

O. D. Sherwood, "The influence of relaxin on the cervix during pregnancy in the rat."

C. Wathes, "Oxytocin: What is it doing in the ovary?"

B. T. Pickering, "Oxytocin and vasopressin in the testis: What, where, and why?"

P. J. Hansen, "Uterine and placental mediated immunoregulation in the sheep uterus."

D. A. Clark, "Tropoblast-uterine interactions: Are immunosuppressors and growth stimulating factors the same?"

8 July

C. O'Neill, "Embryo-derived platelet activation factor: Its role in the establishment and maintenance of pregnancy."

R. M. Roberts, "Possible function of interferons produced by the trophoblast in maternal recognition of pregnancy."

Risk Assessment of Chemical Substances

Brewster Academy

S. Siegel, chairman

13 June

Direction of the role of risk assessment in managing the risk of chemical substances: L. Lave, discussion leader.

Limitations of the risk assessment process. Factors which affect the utility and credibility of the assessment process: E. Anderson, J. Reisa, discussion leaders.

14 June

Scientific issues relevant to the risk assessment process—research di-

rections. Extrapolatability of animal and in vitro system derived toxicology data and information to humans: D. Griesemer, R. Rubin, discussion leaders.

Scientific issues relevant to the risk assessment process—research directions. Extrapolatability of animal and in vitro system derived toxicology data and information to humans: D. Hughes, C. St. Hilaire, discussion leaders.

15 June

The use of data and information from less mature forms of toxicologic test methods in support of the risk assessment process: M. Steinberg, W. Farland, discussion leaders.

Identification and application of new forms of toxicologic evaluation techniques to the risk assessment process: J. Gibson, discussion leader.

16 June

Integrating toxic mechanism of action information into the process of risk assessment for chemical substances: T. Starr, R. Scheuplein, discussion leaders.

Decision theory and the risk assessment of chemical substances: J. Graham, discussion leader.

17 June

The perception and communication of issues relevant to risk assessment focused on chemical substances: P. Slovic, discussion leader.

Second Messengers and Protein Phosphorylation

Kimball Union Academy

C. S. Rubin, chairman; E. J. Neer, vice chairman

13 June

J. Sowadski, "Crystal structure of the catalytic subunit."

M. Zoller, "Analysis of structure/function relationships in protein kinase subunits by in vitro mutagenesis."

J. Richards, "Structure and regulation of a regulatory subunit gene."

M. White, "Transmission of the insulin signal by tyrosine protein kinase."

D. Shalloway, "Regulation of pp60 c-src activity by phosphorylation."

14 June

J. Pouyssegur, "Growth factor signaling pathways—evidence of multiple crosstalks."

S.-G. Rhee, "Primary structure and tissue-specific distribution of three immunologically distinct phospholipase C isozymes."

M. Kennedy, "Structure and function of type II calcium/calmodulin-dependent protein kinase."

J. Beavo, "Calcium-calmodulin stimulated cyclic nucleotide phosphodiesterase."

15 June

P. Devreotes, "Receptor/G-protein interactions controlling *Dictyostelium* development."

R. Kessin, "Effects of overexpression of the cyclic nucleotide phosphodiesterase of *Dictyostelium*."

C. Glover, "Molecular genetic analy-

sis of casein kinase II in *Drosophila* and yeast."

M. Mumby, "Molecular cloning and expression of type 2A protein phosphatase."

A. De Paoli Roach, "Regulatory components of type I phosphatases."

16 June

P. Roach, "Regulation of glycogen synthase by multi-site phosphorylation."

J. Feramisco, "Manipulation of the level of cAMP-dependent protein kinase activity in living fibroblasts by microinjection."

J. Maller, "Mitogenic signaling and protein phosphorylation in *Xenopus* oocytes."

E. Krebs, "Protein phosphorylation in an election year."

17 June

M. Karin, "Cis- and trans-acting elements that mediate control by protein kinases."

M. Montminy, "Regulation of eukaryotic genes by cAMP."

Y. Nagamine, "Urokinase-type plasminogen activator gene regulation by cAMP in vivo and in vitro."

Separation and Purification

Colby-Sawyer College (N)

E. L. Cussler, chairman; T. A. Hatton, vice chairman

7 August

H. Freiser, "Chelation for separation."

D. Friesen, "Complexing oxygen."

H. Katz, "Host guest compounds."

P. Wikstrom, "Affinity fiber chromatography."

8 August

J. Brinker, "Controlled pore oxides."

C. Coe, "Molecular engineered zeolites."

M. McHugh, "Supercritical extractions."

K. Johnson, "Supercritical selectivities."

9 August

K. van Riet, "Reversed micelle extraction."

K. Ananthapadmanabhan, "Two-phase aqueous extraction."

H. Sassenfeld, "Separations by genetic modification."

F. Sreenc, "Separating living cells."

10 August

M. Bohrer, "Ultrapure silicon tetrachloride."

R. Yang, "Ultrapure hydrogen."

I. Sutherland, "Countercurrent chromatography."

11 August

R. Felder, "Specialties: What to do when."

C. White, "Scheduling separations."

Solid-State Chemistry

Plymouth State College (S)

N. Bartlett, chairman; A. Jacobson, vice chairman

25 July

B. Raveau, "The role of crystal chemistry in the properties of mixed valence oxides, high T_c superconductors."

A. W. Sleight, "Oxide superconductors: Mechanism and crystal chemistry."

K. Kitazawa, "Dissolution of various gases in high T_c superconducting oxides."

R. S. Roth, "Equilibria and crystal chemistry in the system Ba-Y-Cu-O."

A. Stacy, "Synthesis and properties of $YBa_2Cu_3O_7$ and related quaternary oxides $M^{III}-Ba-Cu-O$."

26 July

D. Cox, "Applications of high resolution synchrotron x-ray powder diffraction data to structural analysis."

R. J. Cava, "Structure-property relationships in high T_c superconductors."

R. Greene, "Physical properties of high T_c oxides: relation to structure and composition."

J. B. Goodenough, "Superconductivity, charge-density waves and magnetism in copper oxides."

Short presentations on theoretical models for high T_c materials."

27 July

A. Simon, "The borderline of cluster chemistry with valence electron poor metals."

W. Klemperer, "The mechanism of silica sol/gel polymerization."

M. Tournoux, "2D solid Bronsted acid oxides, precursors for prefabricated structures and new syntheses."

C. R. A. Catlow, "Computer simulation techniques for the study of inorganic materials."

Short presentations by conference participants."

28 July

M. M. J. Treacy, "Transmission electron microscopy of defect structures in zeolites."

A. K. Cheetham, "Modeling the behaviour of hydrocarbons in zeolite catalysts."

N. Herron, "Size quantized semiconductor superclusters in zeolite hosts."

W. Jeitschko, "Novel ternary phosphides and carbides."

J. A. Ibers, "Recent studies of ternary chalcogenides."

29 July

A. MacDiarmid, "Organic semiconductors and metals."

A. B. Ellis, "Luminescent properties of semiconductor-derived interfaces."

T. Mallouk, "Novel solid-state microstructures for directed energy and electron transport."

Statistics in Chemistry and Chemical Engineering

New Hampton School

G. J. Hahn, chairman; L. B. Sheiner, vice chairman

1 August

A. C. Atkinson, "Regression diagnostics and very robust regression."

J. MacGregor, "Statistics and engineering process control: The interface."

2 August

D. B. Rubin, "Novel applications of Bayesian methods."

D. Himmelblau, "New techniques in material balance reconciliation."

3 August

G. E. P. Box, "Some recent research in quality improvement."

J. A. Nelder, "Generalized linear models and quasi-likelihood."

4 August

G. Weiss, "Some statistical problems in NMR spectroscopy."

M. Johnson, "Modeling multivariate data sets: Distributions and issues."

5 August

D. Marquardt, "Product quality management: Integrating statistical technology into a systems approach."

Stereochemistry

C. R. Johnson, chairman, J. A. Marshall, vice chairman

Salve Regina College

4 July

L. A. Paquette, " π -Facial selectivity in Diels-Alder additions."

A. S. Cieplak, "Stereochemical effects in π -facial selectivity."

W. J. LeNoble, "Adamantanones: Ideal probes for facial selectivity."

P. G. M. Wuts, "Synthesis of dipeptide hydroxyethylene isosteres."

E. J. Corey, "Rational design of asymmetric catalysts."

5 July

D. P. Curran, "New applications of free radicals on organic synthesis."

T. V. RajanBabu, "From carbohydrates to carbocycles: Stereochemistry of some free radical and organometallic routes."

B. O. Fraser-Reid, "Ramifications of radical additions to aldehydes."

N. Jones, "Stereochemical transformations of organosulfur compounds."

F. A. Davis, "Asymmetric oxidation of enolates."

6 July

G. A. Molander, "Stereochemical syntheses the old-fashioned way."

P. R. DeShong, "Recent advances with organomanganese complexes."

A. J. Pearson, "Transition metal complexes in asymmetric synthesis."

J. B. Jones, "Enzymes in asymmetric synthesis: present and future."

C. J. Sih, "Optically active compounds by biocatalysis."

7 July

M. Ohno, "Substrate specificity and enantioselectivity of pig liver esterase."

C. Tamm, "Preparation of chiral synthons by hydrolytic enzymes."

C.-H. Wong, "New enzymatic syntheses of carbohydrates and peptides."

S. M. Roberts, "Fun with fungi: provision of optically active compounds."

8 July

T. A. Lyle, "Stereochemical issues related to the construction and reactions of dibenzocycloalkanes."

J. I. Seeman, "Conformational analysis by supersonic molecular jet laser spectroscopy."

Synthetic Membranes

Colby-Sawyer College (S)

J. S. Schultz, chairman; W. A. Ward, vice chairman

27 June

R. Birge, "Molecular electronics in Langmuir-Blodgett films."

J. Rabolt, "Molecular assembly-based device construction."

J. Fendler, "Semiconductors and magnetic particles in biomolecular thick films."

28 June

M. Anderson, "Synthesis of ceramic membranes."

K. Keizer, "Transport processes in inorganic membranes."

D. Friesen, "Hydrogen transport in metal membranes."

H. Fleming, "High temperature catalytic membrane reactors."

29 June

E. S. Simon, "Use of membrane-enclosed catalysts in organic synthesis."

P. van Eikeren, "Membrane-assisted bioconversions."

30 June

R. T. Chern, "Membrane gas separations."

Synthetic membranes special lecturer.

1 July

E. Thompson, "Modeling and mechanism of pervaporation processes."

R. Baker, "Separation of organics from dilute process streams by pervaporation."

Theoretical Biology and Biomathematics

Tilton School

H. G. Othmer, chairman; M. Mackey, vice chairman

13 June

R. Keller, "Patterns of change in cell shape."

M. Sato, "Mechanical properties of cytoplasm."

W. Alt, "Models of cell movement."

C. S. Potten, M. Loeffler, "The kinetic and spatial organization of epithelial tissues."

14 June

R. Horn, "Gating of single channels."

L. Liebovitch, "A fractal model of channel kinetics."

M. Guevera, "Propagation block in cardiac tissue."

A. Winfree, "Reentrant waves."

R. E. Ideker, "Phase resetting."

15 June

R. May, "Transmission of HIV."

M. Feldman, "Cultural and infectious transmission."

I. Eschel, "Disease-mediated selection."

L. Brooks, "Frequency-dependent selection."

R. Lenski, "Antibiotics as ecological disturbances."

16 June

S. Fraser, "Patterning of neural maps."

J. Bower, "Deciphering the olfactory cortex."

R. Linsker, "An organizing principle for a perceptual network."

G. Sugihara, "Fractals and scaling."

R. Shonkwiler, "Computer evolution of plant morphology."

17 June

H. Hayashi, "Dynamic properties of a pacemaker neuron."

J. Milton, "Pupil light reflex."

P. Rapp, "Characterization of the human EEG."

Thermosetting Polymers

Colby-Sawyer College (S)

R. S. Bauer, chairman; N. J. Johnston, vice chairman

20 June

W. J. Shultz, "Fluorene resins: A new family of thermosetting resins."

D. G. H. Ballard, "Soluble precursors for the synthesis of polyphenylene."

D. S. Soane, "Characterization of polymeric encapsulants and dielectrics for microelectronic applications."

H. E. Bair, "Development of physical properties in epoxy resins."

21 June

L. W. Hill, "Characterization of thermoset coatings by dynamic mechanical analysis."

L. J. Mathias, "Multinuclear solid state NMR characterization of thermosetting systems."

S. Matsuoka, "Kinetics of curing thermosets."

J. Barlow, "RIM encapsulation of electronic components."

22 June

H. Stutz, "A generalized theory for glass transition temperature of cross-linked and non-crosslinked polymers."

L. Nicolais, "Chemorheology modeling of thermosetting polymers."

P. Johncock, "Some aspects of water absorption in the thermal stability of epoxy thermosets."

T. Maw, "Bismaleimide resin system with improved solution stability."

23 June

J. P. Bell, "Electrochemical polymerization of matrices on to carbon fiber."

J. C. Serfaris, "Processing structure-property interrelationships for heterogeneous thermosetting matrix composites."

N. J. Johnston, "Thermoset and thermoplastic composites: Room for both?"

24 June

D. A. Lewis, "Microwave processing of thermoset polymers."

M. D. Gilbert, "Model compound studies of the dicyandiamide cure of epoxy resins."

Tribology

Holderness School, Plymouth

S. M. Hsu, chairman, H. Cheng, vice chairman

20 June

J. Israelachvili, "Surface forces and tribology."

Prof. Granick/McClelland/Horn, "Surface forces and friction, lubrication."

W. Goddard, "Atomic modeling of friction."

P. Fleischauer, "Surface bounding and active sites in friction and wear."

21 June

K. Kato, "In situ observation of contacts and modeling."

B. Lawn, "Fracture mechanics, surface forces and wear."

S. Hsu, "Tribocchemistry of ceramics."

F. Lockwood, "Liquid crystals as lubricants."

22 June

M. Ashby, "Wear and deformation maps."

N. Suh, "Lubricated wear modeling."

M. Godet, "Velocity adaptation in friction."

W. Winer, "Thermo-mechanical modeling of ceramic wear."

23 June

Prof. Ramalingam, "Development of fast speed-directed arc coatings."

K. Miyoshi, "SiN_x, C:H and BN films as solid lubricants."

24 June

E. E. Klaus, "Vapor phase deposition of lubricants on metals/ceramics."

M. Gardos, "Theory and practice of lubricious oxides on ceramics."

R. Nagarajan, "Solution chemistry of additives."

Vascular Cell Biology

Kimball Union Academy

P. DiCorleto and S. Schwartz, co-chairmen

1 August

Development of blood vessels: R. Ross, chairman.

Speakers: C. Buck, P. Ekblum, R. Jaenisch.

Angiogenesis: J. Folkman, D. Rifkin, chairmen.

Speakers: T. Maciag, P. D'Amore.

2 August

Control of gene expression in the vessel wall: B. Duling, B. Nadal-Ginard, chairmen.

Speakers: G. Gabbiani, R. Schwartz, R. Mecham.

Molecular basis of cell-substrate interactions: D. Wagner, chairman.

Speakers: J. Madri, D. Phillips, D. de Crombrughe.

3 August

Neurovascular biology: J. Gordon, C. Ferrario, chairmen.

Speakers: G. Burnstock, D. Heistad, J. Bevan.

Paracrine and autocrine signaling in the vessel: E. Jaffe, U. Ryan, chairmen.

Speakers: P. Davies, V. Dzau.

4 August

Vascular growth factors: G. Owens, M. Reidy, chairmen.

Speakers: J. Nilsson, L. Williams, D. Clemmons.

Vessel wall protease systems: D. Loskutoff, L. Slakey, chairmen.

Speakers: T. Edgington, D. Stern.

5 August

Molecular cell biology of inflammation: M. Gimbrone, S. Silverstein, chairmen.

Speakers: P. Libby, P. Ward, J. Pober.

Vibrational Spectroscopy

Brewster Academy

W. H. Woodruff, chairmen; J. Rabolt, vice chairmen

15-19 August

G. T. Babcock, "Resonance Raman spectroscopy of cytochrome oxidase."

R. R. Birge, "Protein-based optical memory."

S. Fischer, "Bacteriochlorophyll reaction centers."

S. A. Asher, "Ultraviolet resonance Raman study of biomolecules."

H. Frauenfelder, "Motional properties of proteins."

D. L. Rousseau, round-table discussion.

J. Zucker, "Superlattices."

R. Dluhy, "Infrared spectroscopy of aqueous monolayers."

W. M. Hetherington, "CARS spectroscopy of molecules adsorbed on surfaces."

G. L. Richmond, "Second harmonic generation at surfaces."

T. M. Cotton, "Surface-enhanced Raman spectroscopy of Langmuir-Blodgett films."

C. Zimba, "Fourier transform Raman."

S. F. Agnew, "Vibrational spectroscopy at extreme pressure."

S. Chiang, "Scanning tunneling microscopy."

W. Holzappel, "Optical quantum beat spectroscopy."

E. Ippen, "Femtosecond spectroscopy."

B. I. Swanson, "Linear chain mixed-valence complexes."

B. Batlogg, "High T_c superconductors."

R. Willbrandt, "Reaction dynamics."

R. J. Saykally, "Far-IR studies of Van der Waals clusters."

Water and Aqueous Solutions

Holderness School

M. Newton, chairman; P. Rossky, vice chairman

1 August

J. E. Enderby, "X-ray and neutron studies of aquaions."

J. C. Leyte, "Molecular water in aqueous solution as observed by NMR."

M. G. Sceats, "Collective proton motions in water and aqueous solutions—a probe of network structure."

A. D. J. Haymet, "The ice-water interface."

E. Mayer, "Glassy water and dilute aqueous solutions."

2 August

J. Hubbard, "Multi-state transport processes and solvated ion dynamics."

M. Nakahara, "The role of dielectric friction in irreversible process in aqueous electrolyte solutions."

D. Miller, "Transport properties in mixed electrolyte solutions: The NaCl/MgCl₂/H₂O system."

K. Eisenthal, "Use of second harmonic generation to study structure, composition, and dynamics of liquid interfaces."

J. Als-Nielsen, "Synchrotron x-ray studies of the structure of monolayer films on water."

3 August

J. L. Martin, "Localization and solvation of excess electrons in liquid water."

J. Schnitker, "Quantum dynamics and optical spectra of the hydrated electron."

J. T. Hynes, "Non-equilibrium solvation for charge transfer reactions in aqueous solution."

M. Klein, "Computer simulation studies of amphiphilic assemblies."

L. Kevan, "Effects of interfacial water organization on photochemical charge separation across surfactant interfaces."

4 August

H. D. Abruna, "Structural studies of electrochemical interfaces with x-rays."

J. W. Halley, "Microscopic modeling of outer shell electron transfer at the electrode/electrolyte interface."

H. S. White, "Surface forces and dynamics at metal/electrolyte interfaces."

F. Franks, "Challenges for the 1990's—new conceptual and practical issues facing the water research community."

5 August

P. A. Kollman, "Use of free energy perturbation methods in elucidating aqueous processes."

B. R. Ware, "Aqueous models of transport in cell cytoplasm."

R. G. Bryant, "Water macromolecule interactions: NMR dynamics."

Physicochemical Aspects of Water and Solute

Exchange in the Microvasculature

Plymouth State College (S)

R. W. Gore, chairman; D. Shepro, vice chairman

13 June

A. J. Millici, "Transcytosis of albumin in capillary endothelium."

J. Frokjaer-Jensen, "The plasmalemma vesicular system in capillary endothelium."

J. Zimmerberg, "Mechanisms of fusion of phospholipid vesicles with cell membranes."

J. L. Madara, "A new model to explain transjunctional transport: The anatomical evidence."

J. R. Pappenheimer, "A new model to explain transjunctional transport: The physiological implications."

M. Bundgaard, "The three-dimensional organization of tight junctions between endothelial cells."

14 June

J. Schnitzer, "Specific albumin binding to microvascular endothelium in culture: Quantization and immunolocalization."

M. Hook, "Functions of proteoglycans at cell surfaces."

B. R. Duling, "Evidence for interaction between the endothelial cell surface and plasma components: Rheological and exchange consequences."

R. D. Hogan, "Mechanical modulation of lymph production."

J. L. Unthank, "Regulation of lymphatic contractions in intestine and skin."

15 June

V. Huxley, "Plasma proteins as determinants and modulators of capillary solute and water permeability, in vivo."

A. L. Betz, "Specialized properties and solute transport in brain capillaries."

I. Sarelius, "Albumin distribution space in capillaries: New insights into the interpretation of exchange functions."

A. Orlidge, "Role of pericytes in the regulation of endothelial cell function, as determined in co-cultures."

D. M. Larson, "Intercellular interactions between and among pericytes and endothelial cells."

16 June

M. Shasby, "Physiology functions of normal endothelial cells."

G. King, "Role of insulin receptors in regulation of endothelial cell function."

S. Alexander, "Autocoids, second messengers, and vascular permeability."

Poster session.

17 June

L. Smaje, "Transvascular exchange and salivary gland secretion."

C. Desjardins, "Peritubular and intertubular transvascular exchange in the testis."

H. Hechtman, "New views of vascular permeability in the lung."

GORDON RESEARCH CONFERENCES

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Organization: _____ Accommodations (Room & Meals) For: _____

Business Address: _____ Applicant _____

(inc. dept., street & no.) _____ Spouse _____

City and State _____ Zip Code _____ Child(ren) _____

Total _____

IMPORTANT

Please check if you have applied to another 1988 Summer Conference _____

PROFESSIONAL ACTIVITIES:

What type of position do you have? Graduate Student _____ Post-Doctoral _____ Research Scientist _____ University Professor _____ Research Director _____ Program Manager _____

Are you personally involved in research activities in subject area of Conference? _____ Yes _____ No

How many papers have you published during the past 3 years in the subject area of the Conference?

Indicate your particular activities which justify favorable consideration of you as a participant in and contributor to this Conference. (Not required of speakers.) Applications are referred to the Conference Committee for review in accordance with the established regulations, and this information is essential.

FIXED CONFERENCE FEES — Summer, 1988 — New Hampshire & Rhode Island

*FIXED FEES (New Hampshire Sites)

Conferee (double occupancy)	\$310.00
Non-resident Conferee (meals, no room)	\$270.00
Guest (room, meals)	\$220.00

*Children must be at least 12 years of age to have accommodations (room and meals) at conference host site.

**All rooms at the Rhode Island site are double with bath.

*FIXED FEES (Rhode Island Site**)

Conferee (double occupancy with bath)	\$325.00
Non-resident Conferee (meals, no room)	\$270.00
Guest (room with bath, meals)	\$235.00

PAYMENT:

The full fixed fee will be required IN ADVANCE of ALL PARTICIPANTS AND GUESTS. Attendance and/or accommodations will NOT be reserved unless this fee is paid 3 weeks prior to the Conference. (Foreign participants will also be required to pay Gordon Research Conferences in advance in U.S. dollars payable by wire only to a U.S. bank.) Checks drawn on Canadian banks and foreign banks cannot be accepted and will be returned. Scientists in Canada must use a bank draft obtained from their bank payable in U.S. dollars and drawn on a U.S. bank. Detailed information on payment, travel, etc. mailed with registration material.

1. Full fixed fee charged regardless of time conferee attends Conference. Please note fees.

2. *Fixed fee cannot be prorated or reduced for anyone (speakers, discussion leaders, conferees).

3. Non-resident conferees are expected to eat all meals in the Conference Dining Room and, therefore, the Fixed Fee for non-residents includes the full meal charge.

4. Refunds — See General Information under cancellations.

Please return to:
Dr. Alexander M. Cruickshank
Gordon Research Conferences
Gordon Research Center
University of Rhode Island
Kingston, Rhode Island 02881-0801
Tel.: (401) 783-4011 or (401) 783-3372

Office — Summer Schedule
Colby-Sawyer College
New London, NH 03257
Tel.: (603) 526-2870

BITNET Address: BCP101@URIMVS

Signature _____

Date _____ Telephone: Business _____ Home _____

RECEIPT OF THIS APPLICATION WILL BE ACKNOWLEDGED — PLEASE DO NOT SEND PAYMENT WITH THIS APPLICATION