Gordon Research Conferences

Alexander M. Cruickshank

The Gordon Research Conferences for the summer of 1982 will be held in New Hampshire.

Purpose. The object and exclusive purpose of the Gordon Research Conferences is to foster and promote education and science by organizing and operating meetings of research scientists with common interests in the fields of chemistry or related sciences for the purpose of discussions and the free exchange of ideas, thereby stimulating advanced thinking in research at universities, research foundations, and industrial laboratories. This type of meeting is a valuable means of disseminating information and ideas to an extent that could not be achieved through the usual channels of publication and presentation at scientific meetings. In addition, scientists in related fields become acquainted and valuable associations are formed that often result in collaboration and cooperative efforts among laboratories. It is hoped that each conference will extend the Frontiers of Science by fostering a free and informal exchange of ideas among persons actively interested in the subject under discussion. The purpose of the program is to bring experts up to date on the latest developments, to analyze the significance of these developments, and to provoke suggestions concerning the underlying theories and profitable methods of approach for scientific research. The review of known information is not desired.

Meetings are held in the morning and in the evening, Monday through Friday, with the exception of Friday evening. The afternoons are available for recreation, reading, or participation in discussion groups, as the individual desires.

In order to protect individual rights and to promote discussion it is an established requirement of each conference that no information presented is to be used without specific authorization of the individual making the contribution, whether in formal presentation or in discussion. Scientific publications are not to be prepared as emanating from the Conferences. The recording of lectures by tapes, and so forth and the photography of slides are prohibited.

Registration and Reservations. Individuals interested in attending the Conferences are requested to send their applications to the office of the Director. It is important that you submit your application promptly in order that it may be given early consideration by the review committee. This is particularly necessary for those conferences which are customarily oversubscribed and for which it is often necessary to establish a waiting list.

Applications must be submitted in duplicate on the standard application form which may be obtained from the office of the Director. This procedure is important because certain specific information is required in order that a fair and equitable decision may be made on the application. Attendance at each conference is limited to approximately 100 conferees.

The Director will submit the applications of those requesting permission to attend a conference to the chairperson for that conference. This chairperson will review the applications and select applicants so as to distribute the attendance as widely as possible among the various institutions and laboratories represented by the applications.

A registration card will be mailed to those selected. Advance registration by mail is required for each conference and is completed on receipt of the registration card and the full fixed fee which is required in *advance of all participants and guests*. The advance payment is also required from scientists arriving in the United States from foreign countries and should be payable through a U.S. bank in U.S. dollars. Checks are to be made payable to the Gordon Research Conferences.

Card must be returned 3 weeks prior to the conference with the advance payment or the approved application may be canceled. A registration card not accompanied by the advance payment will not be accepted.

As you know, most Conferences are oversubscribed; therefore, I am sure that you can appreciate our problems with scientists who are qualified to attend but who have been placed on a waiting list. *Please return your card immediately with the advance payment to assure your attendance and accommodations.*

Special Fund. A special fund is provided from the registration fee and is made available to the chairperson of each conference for the purpose of increasing the participation of research scientists who could not otherwise attend and participate because of financial limitations. Its use is not limited to scientists who have been invited by the chairperson as a speaker or discussion leader. The money is to be used as an assistance fund only and may be used to contribute towards conferees' travel expenses, registration fee and/or subsistence expenses at the conference, or both. Total travel and subsistence expenses usually will not be provided.

The Board of Trustees of the Conferences has established a fixed fee for all resident participants (speakers, discussion leaders, conferees) at each conference. This fee was established to encourage attendance for the entire conference and to provide the Special Fund which is available to each conference chairperson. The fixed fee will be charged regardless of the time a participant (speakers, discussion leaders, conferees) attends a conference—that is, for the periods of from 1 to 4½ days.

The fixed fee will cover registration, room (except single room or room with bath), and meals for resident conferees. It will not provide for golf, telephone, taxi, laundry, Conference photograph, or any other personal expenses.

Cancellation. (A) Conferees: All but $40 of the fixed fee will be refunded if an approved application is canceled not later than 2 weeks prior to the Conference. (B) Guests: Accommodations (room and meals) are available for guests. (Children must be at least 12 years of age.) All such requests should be made at the time the attendance application is submitted because these accommodations, limited in number, will be assigned in the order that specific requests are received. The charge for room and meals for guests for five conference nights is indicated in the Fixed Conference Fees schedule. Full refund will be made if cancellation is received 2 weeks prior to the conference; otherwise, $40 will be forfeited. Guests are

The author, director of the Gordon Research Conferences, is professor of chemistry, Pastore Chemical Laboratory, University of Rhode Island, Kingston 02281.

not permitted to attend the Conference lectures or discussion groups.

Pets are prohibited at the conference sites.

Program. The complete program for the 1982 Gordon Research Conferences will be published in *Science*, 5 March 1982. Reprints are available on request.

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

Mail for the office of the Director from 14 June to 27 August 1982 should be addressed to: Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, Colby-Sawyer College, New London, New Hampshire 03257. Telephone: 603-526-2870.

Fixed Conference Fees—1982

New Hampshire

Conferee (double occupancy)	$230.00
Nonresident Conferee (meals, no room)	$190.00
Guest (room, meals)	$170.00

Science of Adhesion

New Hampton School

Lawrence T. Drzal, chairperson; Robert A. Draughn, vice chairperson.

23 August. (J. C. Bolger, discussion leader): I. C. Sanchez, "Theory of polymer interfacial tension"; M. C. H. Lee, "An analytical method for determining the surface energy of solids." (R. J. Diefendorf, discussion leader): A. Oberlin, "Carbon fiber surfaces and glassy polymer composite interfaces"; J. Mijovic, "The morphology of highly crosslinked thermosets."

24 August. (J. A. Koutsky, discussion leader): J. F. Oliver, "Dynamic studies on liquid spreading and penetration into porous materials"; J. L. Kardos, "Void stabilization and transport during composite and adhesive processing." (A. C. Zettlemoyer, discussion leader): G. M. Whitesides, "Organic surface chemistry"; T. E. Helminiak, "Molecular reinforcement of a flexible polymeric matrix."

25 August. (R. J. Morgan, discussion leader): F. N. Kelley, "Fracture of model inhomogeneous glassy network polymers"; R. P. Wool, "Molecular mechanisms of healing at polymer interfaces." Poster session (J. A. Emerson, discussion leader): D. H. Kaelble, "Role of adhesion in the durability of encapsulated solar cells"; L. H. Sharpe and H. Schonhorn, "Inhibition of mass transfer in adhesives for electronics."

26 August. (J. H. Waite, discussion leader): R. M. Gendreau, "A spectroscopic approach to studies of protein adsorption (adhesion) to polymer surfaces"; R. L. Bowen, "Adhesion of dental composite resins to hard tooth tissues." (R. A. Draughn, discussion leader): J. Outwater, "The four coefficients of friction important to skiers."

27 August. (K. Frisch, discussion leader): C. H. Sherwood, "Improvement of adhesive bond strength and durability by in-situ fiberization"; D. M. Hoffman, "Structural and interfacial modification of urethanes to optimize adhesion."

Analytical Chemistry

New Hampton School

Gary M. Hieftje, chairperson; Jack Kirkland, vice chairperson.

16–20 August. Christie G. Enke, "Recent developments in triple-quadrupole mass spectrometry"; Keith Grime, "Analytical enthalpimetry—an academic and industrial perspective"; Tomas Hirschfeld, "Ultra-micro analytical instrumentation"; James Holcombe, "Insights into atom-formation mechanisms in furnace atomic absorption analysis"; Gary Horlick, "New analog and digital instrumentation for signal processing applications"; Jasper Jackson, "Inside-out nuclear magnetic resonance spectroscopy"; James W. Jorgenson, "High-resolution separations based on electrophoresis and electroosmosis"; Gordon F. Kirkbright, "New approaches to atomic and molecular spectroscopy"; Richard McCreery, "Ultrahigh sensitivity electrochemical measurements"; Milos Novotny, "New approaches to high-efficiency liquid chromatography"; Jaromir Ružičika, "Horizons in flow-injection analysis"; Hank Wohltjen, "Novel chemical microsensors"; Edward D. Wolf, "Present and future impact of miniaturization on chemical instrumentation"; J. N. Zemel, "Microsensors for chemical analysis."

Animal Cells and Viruses

Tilton School

George Khoury and Barbara Hamkalo, co-chairpersons.

21 June. Transcriptional regulation (P. Sharp, chairperson): D. Brown, P. Berg, T. Shenk, speakers. Complex regulatory systems (H. Weintraub, chairperson): J. Pero, R. Losick, M. Ptashne, B. Huang, G. Ringold, J. Hicks, speakers.

22 June. Chromosome organization and function (S. Elgin, chairperson): G. Felsenfeld, B. Hamkalo, D. Ward, A. Rich, speakers. Mobile genetic elements (N. Federoff, chairperson): R. Reed, S. Roeder, P. Leder, G. Rubin, speakers.

23 June. Cytoarchitecture (M. Kirschner, chairperson): R. Hynes, speaker. Mediators of extracellular communication (I. Pastan, chairperson): M. Cech, M. Raftery, R. Ross, speakers.

24 June. Transformation (E. Scolnick, chairperson): T. Benjamin, P. Vogt, E. Krebs, speakers. Modern approaches to neoplasia, (J. Cairns, chairperson): S. Lavi, G. Cooper, R. Weinberg, M. Wigler, speakers.

25 June. Antigen recognition by T cells (M. Gefter, chairperson): J. Sprint, R. Schwartz, S. Tonegawa, speakers.

Atomic and Molecular Interactions

Brewster Academy

Russell T. Pack, chairperson; Peter Siska, Vice chairpersons.

26 July. van der Waals interactions: K. C. Janda, "Experimental studies of van der Waals molecule predissociation"; W. Meyer, "Advances in ab initio calculations of van der Waals potentials and collison-induced dipole moments"; W. J. Meath, "The construction of intermolecular potentials for interactions involving closed shell systems"; K. T. Tang, "A simple intermolecular potential model"; G. Scoles, "Hybrid theoretical calculations of intermolecular forces: nonspherical systems." Open discussion: B. Linder, "The van der Waals well. Do we really know how to connect the long and short range potentials?"

27 July. Line shapes and spectroscopy: A. S. Pine, "Collisional lineshapes by difference frequency laser spectroscopy"; A. De Pristo, "Exact and approximate quantum number sealing theories for reactive and non-reactive processes: an application to collision-broadened linewidths"; C. J. Jameson, "Intermolecular interactions in nuclear magnetic resonance spectroscopy." Inelastic collisions: G. W. Flynn, "Photofragmentation and energy transfer in low pressure gases and low temperature matrices"; D. C. Clary, "Vibrational excitation in polyatomic molecule collisions with atoms"; U. Buck, "Rotational energy transfer in molecular beam experiments."

28 July. Bulk and transport properties and empirical potentials: B. Schramm, "Virial coefficients and intermolecular

potentials''; D. K. Hoffman, ''Magnetic field effects on transport properties''; E. A. Mason, ''Study of ion-molecule forces from transport measurements''; J. Kestin, ''Measurement of transport properties and the law of corresponding states''; G. C. Maitland, ''The inversion of gas transport coefficients: achievements and prospects.'' Single property vs. multiproperty empirical potentials. Is one property enough? (R. T. Pack, discussion leader).

29 July. Interactions with surfaces: D. J. Auerbach, ''Molecular beam studies of surface chemical dynamics''; H. Metiu, ''Surface electrodynamics, surface spectroscopy and surface-molecule energy transfer''; J. P. Toennies, ''Helium-surface scattering experiments for studying surface-phonon dispersion relations and adsorption-desorption quantum processes.'' Keynote speaker: J. O. Hirschfelder, ''My fifty years in theoretical chemistry.''

30 July. Reactive scattering: A. Kuppermann, ''Hyperspherical coordinates in reactive scattering''; K. Hayden, ''F + H_2 reactive scattering experimental results.'' Open discussion: G. A. Parker, ''The (Sad?) state of reactive scattering theory.''

There will be one or two poster sessions. Those interested in contributing to a poster session should contact the chairperson.

Participants are encouraged to prepare to participate in the three open discussion periods noted in the program.

Basement Membranes

Proctor Academy

Nicholas A. Kefalides, chairperson; Marilyn G. Farquhar, vice chairperson.

14 June. Distribution and location of basement membrane components (Robert Vernier, discussion leader): Marilyn G. Farquhar, speaker. Basement membrane constituents. I. Collagen (Nicholas A. Kefalides, discussion leader): Saryu N. Dixit, Charles C. Clark, speakers.

15 June. Base membrane constituents. II. Glycoproteins (George R. Martin, discussion leader): Rupert Timpl, speaker. Extracellular assembly: Arthur Veis, speaker. Basement membrane constituents. III. Proteoglycans (Gary Conrad, discussion leader): Vincent C. Hascall, speaker.

16 June. Biosynthesis of basement membrane components (Gary E. Striker, discussion leader): Brigid L. M. Hogan, Philippe Mahieu, speakers. Cell-matrix interactions (Merton R. Bernfield, discussion leader): Elizabeth D. Hay, Richard Hynes, Denis Gospodarowicz, speaker.

17 June. Basement membranes in disease (Alfred F. Michael, Jr., discussion leader): Curtis B. Wilson, Giuseppe A. Andres, speakers. Robert G. Spiro, ''Biosynthesis of glycoproteins.''

18 June. Basement membrane degradation (Andrew H. Kang, discussion leader): Lance Liotta, Garth L. Nicholson, speakers.

All participants are invited to bring a poster related to their current work. An informal poster session will be held in relation to each of the program sessions. Please indicate the title of your contribution and give a brief outline or abstract in your conference application. Session leaders will select discussants on this basis.

Bioelectrochemistry

Proctor Academy

David F. Wilson, chairperson; Arthur Pilla, vice chairperson.

2 August. Dioxygen and its activation (D. T. Sawyer, chairperson): D. T. Sawyer, ''Electron-transfer chemistry and activation of dioxygen''; T. Kuwana, ''Enhanced redox energetics by catalysis.'' Biochemistry of dioxygen: J. Fee, ''Oxygen metabolism and toxicity''; S. Chan, ''Cytochrome oxidase''; J. Groves, ''Cytochrome P_{450}''; J. K. Hurst, ''Phagocytosis by leukocytes.''

3 August. Electron transfer reactions (D. F. Wilson, chairperson): R. Marcus, ''Rates of electron transfer''; W. Orme-Johnson, ''Iron-sulfur proteins: structure and reaction mechanism''; G. S. Wilson, ''Bioelectrochemistry of thioethers''; R. W. Estabrook, ''Microsomal electron transport reactions''; M. Erecinska, ''Mitochondrial electron transport reactions''; J. M. Vanderkooi, ''Distance and orientation in electron transfer reactions with cytochrome *c*.'' (poster)

4 August. Electrochemistry at surfaces (M. Blank, chairperson): M. Blank, ''Surface processes in the regulation of ion transport in excitable membranes''; T. H. Haines, ''The regulation between ion transport and changes in bilayer structure''; P. Mueller, ''Electron transport processes in and across bilayer membranes''; I. R. Miller, ''Enzymes at surfaces''; L. B. Wingard, ''Enzyme electrodes''; Y. Chizmadjev, ''Lipid bilayer breakdown in electric fields.''

5 August. Electrochemistry in living cell function (H. Pohl and A. A. Pilla, chairpersons): A. A. Pilla, ''Cell surface electrochemical kinetics and biochemistry''; R. Luben, ''Electromagnetic modulation of function and differentiation of bone cells in vitro''; H. Berg, ''Electrochemical aspects of cell fusion''; H. Pohl, ''Natural radio frequency oscillations in living cells''; H. Wachtel, ''Nonthermal effects of radio frequency in vivo.''

6 August. Whole organism effects of electrical fields (W. Regelson, chairperson): L. Norton, ''Antitumor activity of electromagnetically induced currents''; P. Christel, ''Electrochemical modulation of bone fracture repair.''

There will be daily poster sessions. Conferees wishing to participate should include the poster title and brief outline in their application.

Orthopaedic Science and Bioengineering

Kimble Union Academy

Roby C. Thompson, Jr., chairperson; Edmund Y. S. Chao, vice chairperson.

23 August. Response of bone to normal stress and pathologic conditions (William Harris and Dennis Carter, co-chairpersons): Melvin Glimcher, ''Mineralization''; Steven Teitelbaum, ''Morphometric responses of bone.'' Wilson Hays and Savio Woo, ''Mechanical stresses in bone.''

24 August. Bone responses to prosthetic devices (Edmund Chao and William Enneking, co-chairpersons): Rik Huiskes, ''Bone stress remodeling and implant fixation strenth''; David Nunamaker, ''Tissue response to prosthetic implants.'' Bone responses to electric environment: Iwao Yasuda, ''Piezoelectric property of bone and electrical stimulation of connective tissue''; Craig Hassler, ''Engineering consideration of bone stimulation by electricity.''

25 August. Spine: Material properties and motion (Malcolm Pope and Augustus White, co-chairpersons): Gunnar Anderson, ''Material properties of the spine''; Monohar Panjabi, ''Motion properties of the spine.'' Jill Urban, ''Biologic properties of the intervertebral disc''; David Bradford, ''Biochemical properties of the intervertebral disc.''

26 August. Muscle mechanics and function (Albert Burstein and David Sutherland, co-chairpersons): (speaker to be announced), ''Contractile mechanisms of muscle''; (speaker to be announced), ''Mechanical properties of muscle fibers''; (speaker to be announced), ''Control of muscle (force-length ratio).'' Clement B. Sledge, ''Bioengineering and orthopaedics; past, present and future.''

27 August. (speaker to be announced), "EMG measurements of muscle"; (speaker to be announced), "Invasive measurements of muscle function"; (speaker to be announced), "Non-invasive measurement of muscle function."

Biological Regulatory Mechanisms

Holderness School

Martha M. Howe and David Botstein, co-chairpersons; Richard Palmiter and Martin Rosenberg, co-vice chairpersons.

21 June. Regulatory consequences of gross genome organization and compartmentation (John Roth, chairperson). Chemotaxis and motility (Daniel Koshland, chairperson).

22 June. Transcription initiation (Terrance Cooper, chairperson). RNA termination and processing (Martin Rosenberg, chairperson).

23 June. Cytoskeletal and eucaryotic regulation (Ronald Morris, chairperson). Chromatin (Abraham Worcel, chairperson).

24 June. Regulatory and developmental consequences of transposition (Nina Fedoroff, chairperson). Development and morphogenesis (David Hirsh, chairperson).

25 June. Hormones (Edward Herbert, chairperson).

Physics and Physical Chemistry of Biopolymers

Holderness School

Bruce Hudson and Walter Englander, co-chairpersons.

Biopolymer Dynamics

5 July. Molecular dynamics (B. Zimm, chairperson): K. Wilson, "Ion transport by gramicidin"; M. Levitt, "Double helix"; A. McCammon, "Proteins and membranes"; F. Jahnig, "Fluctuations in bilayers." Structure formation and unfolding (T. Tsong, chairperson): R. Baldwin, "Side chain interactions"; T. Creighton, "Protein unfolding and refolding"; D. Turner, "Nucleotide unstacking."

6 July. Enzyme motions and action (B. Honig, chairperson): A. Warshel, "Dynamics of enzymatic reactions"; A. Hagler, "Inhibitor binding to dihydrofolate reductase"; J. Nagel, "Proton motions"; S. Bernhard, "Are fluctuations functional?" (J. Schellman, chairperson): A. Kossiakoff, "H-D exchange by neutron diffraction"; N. Allewell, "Allostery and fluctuations in ATCase"; J. Sturtevant, "Heat capacity changes in protein reactions."

7 July. Dynamics by NMR and fluorescence (R. Griffin, chairperson): B. Reid, "Double resonance methods applied to tRNA"; D. Patel, "Ligand-DNA complexes"; M. Brown, "Rhodopsin chain dynamics"; B. Sykes, "Lipid-protein interactions, by ^{19}F-NMR." (S. Chan, chairperson): S. Opella, "Filamentous phages"; J. Lakowitz, "Protein and lipid dynamics"; P. Wolber, "Time domain measurements of acyl chain motional amplitudes": F. Dahlquist, "Lipid-protein interactions."

8 July. Nucleic acid dynamics (D. Kearns, chairperson): W. Olson, "Understanding DNA dynamics"; L. Lerman and I. Hurley, "Torsional motion and elasticity"; R. Austin, "Triplet anisotropy decay"; M. Shore, "Internal motions in DNA"; G. Feher, "The reaction center: The site of the primary process in bacterial photosynthesis."

9 July. Interacting systems (P. von Hippel, chairperson): R. Stroud, "Membrane protein structures"; P. Lu, "Lac repressor–operator interactions"; J. Seelig, "Proteins and lipids in membranes."

All conference participants who wish to present a poster on their research should include a title and a brief abstract with their conference application.

Biochemistry and Physiology of Bones and Teeth

Kimball Union Academy

Louis V. Avioli, chairperson; Gideon Rodan, vice chairperson.

19 July. Invited short papers (L. V. Avioli and G. Rodan, session co-chairpersons). Extracellular calcium-binding proteins in bone (L. G. Raisz, chairperson): John Termine, "Osteonectin and related bone proteins"; Paul Price, "Bone gla protein."

20 July. Cellular calcium (H. Rasmussen, chairperson): Howard Rasmussen, "Calcium as a messenger"; Gerald Becker, "Calcium buffering by mitochondria"; Jerry H. Wang, "Physiological role of calmodulin"; Frank Vincenzi, "The calcium pump in the plasma membrane"; James Putney, "Calcium channels in the plasma membrane"; John Farber, "Calcium and cell death"; (David Waisman, discussant). Phosphate metabolism and transport (M. Walser, chairperson): Brian Ross, "NMR measurements of soft tissue phosphorus"; (Robert S. Balaban and Juha P. Kokko, discussants).

21 July. Phosphate metabolism and transport (M. Walser, chairperson): Mark Hammerman, "Cyclic-AMP dependent protein phosphorylation and dephosphorylation in brush border preparations"; Vincent Dennis, "Phosphate transport in the proximal tubule"; Bertram Sacktor, "Regulation of phosphate transport by vitamin D"; Thomas Dousa, "Role of NAD in the regulation of phosphate transport by brush border preparations." Invited short papers (L. V. Avioli and G. Rodan, co-chairpersons).

22 July. Membrane-ligand interactions (S. Krane, chairperson): Michael Rosenblatt, "Properties of parathyroid hormone receptors"; Richard Klausner, "Membrane structure, membrane fields and ligand-receptor interactions"; Dennis Ausiello, "Vasopressin action as a model for ligand-receptor interaction"; Gerald Aurbach, "Ion transport, cyclic nucleotides, and calcium metabolism."

23 July. Calcium antagonists (B. Sobel, chairperson): Philip Henry, "Prevention of cell necrosis with calcium antagonists"; (Roger Loutzenhiser and Frank Vincenzi, discussants). Dieter Kranisch, "Modification of atherosclerosis with calcium chelates"; (James Wilerson, discussant).

Monday morning (19 July) and Wednesday morning (21 July) will be devoted to short paper presentations, the latter to be selected from abstracts sent to: Dr. Louis V. Avioli, The Jewish Hospital of St. Louis, 216 South Kingshighway, St. Louis, Missouri 63110. Selected preference will be given to abstracts related to the formal program as detailed above. The abstract deadline is 18 June 1982.

Cancer

Colby-Sawyer College

Paul H. Black, chairperson; Margaret Kripke, vice chairperson.

23 August. Carcinogenesis: alteration of gene structure and function (Thomas Benjamin, session chairperson): Thomas Benjamin, "Viral carcinogenesis: transforming proteins of oncogenic DNA viruses"; Anthony Hunter, "Viral carcinogenesis: Transforming proteins of oncogenic RNA viruses"; Martin Pall, "Proto-oncogens, gene amplication and tumor promotors." Tumor cell biology: Cytoskeleton and regulation (Sheldon Penman, session chairperson): Sheldon Penman, "Cytoplasmic and nuclear architecture in cells: Form, function and mode of assembly"; Iih-Nan Chou, "Cytoskeletal perturbation and cell activation."

24 August. Tumor cell biology: Cytoskeleton-nuclear interactions (Donald Coffey, session chairperson): Bill R. Brinkley, "Transduction and the cytoskeleton: Role of 2nd messengers"; Donald Coffey, "Nuclear matrix: Role in regulation and possible interaction with cytoskeleton"; Avri Ben-Ze'ev, "Association of virus replication and viral messenger RNA metabolism with the nuclear matrix and cytoskeletal framework in SV40 infected cells." The cancer cell membrane: Release of macromolecules and pathophysiological consequences (Paul H. Black, session chairperson): Paul H. Black, "Shedding of macromolecules from normal and cancer cells"; Lloyd Culp, "Generation and shedding of adhesion macromolecules from normal and malignant fibroblasts."

25 August. The cancer cell membrane: Shedding, coagulation, tumor cell invasion (Harold Dvorak, session chairperson): Harold Dvorak, "Shedding and coagulation in cancer"; Lance Liotta, "Tumor invasion of basement membranes: Role of membrane shedding"; Robert Cone, "Shedding of lymphocyte surface proteins and its relevance to the immune system." Tumor immunology: Host response to cancer (importance of natural killer cells and macrophages) (Hans Wigzell, session chairperson): Hans Wigzell, "Natural killer cells and immune surveillance"; Ganesa Yogeeswaran, "Role of tumor cell surface carbohydrates in natural killer cell recognition."

26 August. Tumor immunology: Macrophages, psychoimmunomodulation (Carl Nathan, session chairperson): Carl Nathan, "Mechanisms of macrophage antitumor immunity"; Dolph Adams, "How macrophages recognize tumor cells and the signals that induce this capacity"; Robert Ader, "Psychoimmunodulation." Selected short papers from the audience.

27 August. Strategies in tumor therapy (Frederick Moolten, session chairperson): Frederick Moolten, "Therapeutic potential of antibodies as carriers of diagnostic and therapeutic agents"; David Goldenberg, "Tumor cell targeting: Radiolabeled antibodies in cancer detection"; Metta Strand, "Diagnostic tumor imaging and therapy utilizing monoclonal antibodies."

Cardiac Glycosides

Tilton School

Arnold Schwartz, chairperson; Earl T. Wallick, vice chairperson.

23 August. Historical perspective: K. S. Lee, "Historical development of the mechanism of inotropic action of cardiac glycosides"; K. Repke, "Horizons in digitalis research." Regulation of radioligand binding (E. T. Wallick, discussion leader): O. Hansen, "[^{3}H]ouabain binding to purified Na,K-ATPase"; G. E. Lindenmayer, "Na,K-ATPase and digitalis receptors in sarcolemmal enriched preparations from heart." Mechanism of inhibition of Na,K-ATPase by cardiac glycosides: P. A. G. Fortes, "Fluorescent cardiac glycosides"; A. Yoda, "Mechanism of cardiac glycoside inhibition of Na,K-ATPase."

24 August. New approaches and directions in structure activity relationships (E. R. Thomas, discussion leader): A. E. Ruoho, "Digitoxin and cymarin derivatives as affinity labels for the cardiac glycoside binding site on Na,K-ATPase"; D. C. Rohrer, "Structural analysis of cardiac glycoside sugars"; D. S. Fullerton, "Integration of synthesis, crystallography, biological studies and computer graphics." In vivo effects of digitalis on ions: H. A. Fozzard, "Role of sodium/calcium exchange in positive inotropic effect of digitalis"; G. A. Langer, "Calcium distribution after sodium pump inhibition in cultured myocardial cells."

25 August. Mechanism of inotropic effect of digitalis I (T. W. Smith, discussion leader): T. Akera, "Reserve capacity of the sodium pump and the force of myocardial contraction"; E. Erdmann, "Two distinct ouabain binding sites in the heart"; G. T. Okita, "Evidence that the inotropic receptor for digitalis is not the inhibitory receptor of Na,K-ATPase"; A. Schwartz, "Evidence that Na,K-ATPase is the receptor for the inotropic effect of digitalis."

26 August. Endogenous analogues of digitalis—"Endodigin" (A. Schwartz, discussion leader): K. A. Gruber, "Vertebrate cardiotonic substances." Current state of clinical use of cardiac glycosides (V. P. Butler, Jr., discussion leader): T. W. Smith, "Use of antidigoxin Fab fragments in digitalis intoxication"; V. P. Butler, Jr., "Possible hazards in the clinical use of digitalis."

27 August. Newer cardiotonic drugs (T. M. Brody, discussion leader): T. Peters, "Modified cardiac glycosides possessing greater safety margins"; R. C. Dage, "Cardiac activity of some novel 4-aroylimidazol-2-ones"; A. Alousi, "The potential of the bipyridines in the treatment of congestive heart failure."

In addition to the above program, poster sessions will be arranged and all interested participants should contact Arnold Schwartz, Department of Pharmacology and Cell Biophysics, University of Cincinnati, College of Medicine, 231 Bethesda Avenue, Cincinnati, Ohio 45267.

Catalysis

Colby Sawyer College

Albert Vannice, chairperson; Gabor Somorjai, vice chairperson.

28 June. R. J. Madix, "Recent advances in surface reactivity"; P. L. Walker, Jr., "Catalysis of carbon gasification and deposition"; G. L. Haller, "Support effects on Rh and Rh bimetallic catalysts."

29 June. W. A. Goddard, "Mechanistic studies of catalytic reactions"; D. W. Goodman, "Correlations between surface properties and catalytic activity"; J. R. Katzer, "Spectroscopic and catalytic characterization of Rh supported on a range of oxides."

30 June. G. Ertl, "Studies on promoter actions in ammonia synthesis"; T. J. Marks, "Organoactinide chemistry: Reaction patterns and catalysis"; T. H Wood, "Surface enhanced Raman scattering as a probe of molecular adsorption."

1 July. H. Topsøe, "The nature of the active Co-Mo-S phase in HDS catalysts: Recent EXAFS, IR, Mössbauer spectroscopy, TEM, and magnetic measurements"; P. N. Ross, "Microstructure analysis of PtTi bimetallic catalysts by scanning Augér and STEM"; P. H. Emmett, "Highlights in my catalytic career including work, students, research assistants and memorable fellow scientists."

2 July. D. R. Fahey, "Competitive reaction paths in the homogeneous hydrogenation of carbon monoxide"; P. Gallezot, "Modifications of the crystal structure and morphology of platinum aggregates incaged in zeolites under environmental effects."

Solid State Studies in Ceramics

Plymouth State College

D. P. H. Hasselman, chairperson; H. Kent Bowen, vice chairperson.

Mechanical and Thermal Effects and Interactions at Ceramic Surfaces and Interfaces

9 August. Microcracked materials: (B. Budiansky, discussion leader): R. J. O'Connell, "Continuum properties of microcracked materials: theory"; H. Heard, "Effect of cracks on physical properties of rock materials." (R. L.

Coble, discussion leader): P. E. Evans, "Effect of cracks on creep"; L. D. Bentsen, "Thermal diffusivity of microcracked brittle composites."

10 August. Crack propagation and fracture (R. Raj, discussion leader): A. G. Evans, "High-temperature failure phenomena"; T-J. Chuang and R. Fields, "Long-term fracture of structural ceramics; I. theory; II. experiment"; S. Burns, "Entropy changes in fractured solids." (A. S. Argon, discussion leader): R. Thompson, E. Fuller and I. H. Lin, "Dislocation processes at crack tips"; J. L. Bassani, "Macro- and micro-mechanics of high-temperature fracture."

11 August. Thermal and mechanical effects at interfaces: (A. F. Emery, discussion leader): J. R. Barber, "Thermoelastic effects due to heat flow across interfaces"; T. Dow, "Observations on influence of thermal and mechanical effects on the contact of sliding surfaces." (H. P. Kirchner, discussion leader): I. Finnie, "Aspects of fracture and wear of ceramic surfaces"; P. G. Klemens, "Effect of grain boundaries and thermal discontinuities on the thermal conductivity of ceramic materials."

12 August. Brief topical presentations: (W. R. Cannon, discussion leader): M. Hvatum, "Computer modelling for thermal failure mode prediction in PTZ-ceramics"; M. Brooks, "Microwave heating induced thermal fracture of electronic ceramics"; K. Faber, "Comparison of crack-shielding and particle interaction mechanisms of toughening"; M. Comninou, "Effect of heat flow on the interface crack." E. Garfield, "Some not so random thoughts on the scientific literature."

13 August. Effects of intense radiation at surfaces: (H. K. Bowen, discussion leader): R. W. Ohse, "Equation of state studies of UO_2 by a transient high-intensity laser pulse heating technique"; F. W. Clinard, Jr., "Thermal and structural effects in irradiated ceramics for fusion applications."

Titles for additional brief presentations can be submitted to the chairperson: D. P. H. Hasselman, Department of Materials Engineering, Virginia Polytechnic Institute, Blacksburg, Virginia 24061.

Chemotherapy of Experimental and Clinical Cancer

Colby-Sawyer College

Joseph Bertino, chairperson; Gerald Mueller, vice chairperson.

26 July. Thymidylate synthetase/fluoropyrimidines (F. Maley, chairperson): D. Santi, "Thymidylate synthetase: mechanism, inhibition and gene amplification"; F. Maley, "Thymidylate synthetase"; K. Harrup, "Tight binding 2-amino 4 hydroxyquinazoline inhibitors of thymidylate synthetase." Ovarian cancer—basic and clinical considerations (E. Frei III, discussion leader): R. Bast, "Monoclonal antibodies to ovarian cancer"; R. Young, "Experimental approaches to treatment of ovarian cancer."

27 July. Drugs that degrade DNA (A. Grollman, discussion leader): I Goldberg, "Mechanism of action of neocarzinostatin"; A. Grollman, "Mechanism of action of bleomycin"; Y. Okami, "Mechanism of action of bleomycin and analogs." Anthracyclines—mechanism of action and clinical use (F. Muggia, discussion leader): C. Meyers, "Adriamycin biochemical mechanisms of cardiac toxicity"; T. Tritton, "Interaction of adriamycin with cell membranes"; J. Speyer, "Clinical and pharmacologic studies with adriamycin and 4′epiadriamycin."

28 July. Drug resistance (J. Biedler, discussion leader): P. Melera, "Gene amplification in methotrexate resistant Chinese hamster lung cells"; J. Biedler, "Vincristine resistance": V. Ling, "Resistance to vinca alkaloids." Methotrexate polyglutamates (I. D. Goldman, discussion leader): J. McGuire, "Enzymic formation of methotrexate polyglutamates"; I. D. Goldman, "Role of polyglutamation formation in methotrexate effects"; J. Jolivet, "Methotrexate polyglutamate formation in breast cancer cells."

29 July. Differentiation of cells (G. Mueller, discussion leader): T. W. Mak, "Effects of phorbol esters on differentiation of T-lymphocytes"; H. Green, "Epidermal cell differentiation"; R. Aft, "Interaction of heme with proteins in cells." T-lymphocytes—disorders and treatment (R. Gallo, discussion leader): R. Gallo, "Control of human T-cell proliferation"; S. Schlossman, "T-cell subsets identified by hybridoma antibodies"; S. Rosenberg, "Cytotoxic T-cells as antitumor therapy."

30 July. New approaches to tumor therapy (V. Allfrey, discussion leader): A. Schwarz, "Antitumor and anti-obesity effects of dihydroepiandrosterone"; I. Fidler, "Liposomal delivery of lymphokines and muramyl dipeptides"; V. Allfrey, "Antitumor effects of cyanate"; Y. S. Chang, "Tumor arrest by L-arginine and cyclic AMP."

Poster sessions for participants: 26, 27, and 28 July.

Applications

Scientists are invited to submit applications for attendance at the Gordon Research Conferences. An application blank is on page 1309 and may be submitted to Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, University of Rhode Island, Kingston, Rhode Island 02881.

CO_2 Fixation by Green Plants

Proctor Academy

Clanton C. Black, chairperson; William Ogren, vice chairperson.

5 July. Net CO_2 fixation and plant productivity (R. H. Brown, discussion leader): L. Christy, "Canopy photosynthesis and yield in corn and soybeans"; R. Peterson, "Carbon balances in tobacco and yield"; N. E. Tolbert, "Atmospheric CO_2 changes and plant growth." Environmental stresses and CO_2 fixation (J. Berry, discussion leader): J. Ehleringer, "Comparative physiology and environment"; B. Osmond, "Photoinhibition and CO_2 fixation"; G. Berkowitz, "In vitro osmotic stress and chloroplast metabolism."

6 July. Photosynthesis and photorespiration genetics (W. Ogren, discussion leader): C. R. Somerville, "Genetic analysis in *Arabidopsis*"; R. Togasaki, "Genetic analysis in *Chlamydomonas*"; C. J. Nelson, "Selections, ploidy levels, and photosynthesis." CO_2 assimilation in CAM and C_3/C_4 intermediate plants (G. Edwards, discussion leader): R. Chollet, "CO_2 metabolism C_3/C_4 intermediate plants"; I. Ting, "Carbon metabolism in CAM plants."

7 July. Carboxylases and oxygenase (N. E. Tolbert, discussion leader): F. Hartman, "Modification and structure of RuBP carboxylase"; G. Lorimer, "Activation of RuBP carboxylase/oxygenase"; R. Gerster, "$^{15}O_2$ analysis of RuBP oxygenase"; K. Winter, "Regulation of green tissue PEP carboxylases." Modulation of photosynthetic enzymes (E. Latzko, discussion leader): L. Anderson, "Light modulation of photosynthetic enzymes"; B. Buchanan, "Thioredoxin modulation of plant enzymes"; J. Perchorowicz, "Metabolite modulation of RuBP carboxylase."

8 July. Intracellular regulation of photosynthesis (R. Jenson, discussion lead-

er): H. Heldt, "Characterization of chloroplast translocators"; D. Walker, "Chloroplast regulation and leaf photosynthesis"; H. Hatch, "Cellular regulation of C_4 photosynthesis"; R. Douce, "The chloroplast envelope and the regulation of photosynthesis."

9 July. Photosynthate utilization and CO_2 fixation (R. Wyse, discussion leader): R. Evert, "Structure of source leaves and partitioning"; S. Huber, "Partitioning carbon"; R. Giaquinta, "Source partitioning, loading and photosynthesis"; D. Geiger, "Sinks and photosynthesis."

Physics and Chemistry of Coatings and Films

Plymouth State College

S. Peter Pappas, chairperson; Percy Pierce, vice chairperson.

16–20 August. Loren Hill, "Characterization of coatings"; Ted Provder, "Characterization of oligomers and coatings"; Dan Perera, "Internal stress in organic coatings"; Cliff Schoff, "Rheology of oligomer solutions"; Dan Pendergrass, "Wetting and adhesion to flexible polymers"; Michael Lazzara, "Chemistry of melamine resin reactions"; Mohinder Chattha, "Latent acid catalysts for melamine resins"; Rolf Dhein, "Organic heterocyclics for powder coatings"; Hendrik Hageman, "Photoinitiators for radical polymerization"; James Crivello, "Photoinitiators for cationic polymerization"; Rudolph Kurchmayr, "UV curing by radical polymerization"; Don Larson, "Chemistry of air-dry alkyd coatings"; Gregory Jacobs, "Structure-viscosity relationships of methacrylic oligomer solutions."

Corrosion

Colby-Sawyer College

E. Neville Pugh, chairperson; Per Kofstad, vice chairperson.

26 July. Passivity and pitting (P. Kofstad, discussion leader): B. MacDougall, "Incorporation of chloride ions in nickel oxide films: Influence on passivity and pitting"; J. R. Galvele, "Localized acidification in pitting corrosion." Crevice corrosion (H. S. Isaacs, discussion leader): D. F. Taylor, "Crevice corrosion of alloy 600 and type-304 stainless steel"; R. C. Alkire, "Initiation of crevice corrosion in aluminum"; J. W. Oldfield, "Mathematical modelling of crevice corrosion of stainless steels."

27 July. Application of impedance techniques to corrosion studies (F. Mansfeld, discussion leader). Short presentations by panel members: B. D Cahan, W. J. Lorenz, M. Keddam, L. M. Callow, M. W. Kendig; panel discussion. Embrittlement of iron and nickel by hydrogen and by solute elements (H. K. Birnbaum, discussion leader): R. H. Jones, "Evaluation and interpretation of recent experimental evidence"; C. L. Briant and R. P. Messmer, "Application of theoretical cluster calculations."

28 July. Environment sensitive fracture I (F. P. Ford, discussion leader): R. C. Newman, "Mechanisms of intergranular SCC of sensitized stainless steels"; A. Turnbull, "Theoretical and experimental studies of crack electrochemistry in structural steels in a marine environment." Environment sensitive fracture II (D. J. Duquette, discussion leader): R. N. Parkins, "Initiation of stress corrosion and corrosion fatigue cracks in various systems"; R. P. M. Proctor, "Corrosion fatigue of offshore steels."

29 July. Selective dissolution (R. H. Heidersbach, Jr., discussion leader): A. J. Forty, "Selective dissolution and the corrosion of gold alloys"; H. Kaiser, "Practical and theoretical aspects of the selective dissolution of noble metal alloys." Special topics (E. A. Bardasz, discussion leader): A. J. Forty, "Selective dissolution and the gold of El Dorado"; J. E. Harris, "Damage due to rusting—from the Acropolis to the Atomic Power station."

30 July. New approaches (B. E. Wilde, discussion leader): U. Bertocci, "Measurement and interpretation of electrochemical noise"; M. Janik-Czachor, "In situ characterization of the metal-electrolyte interface by surface enhanced Raman spectroscopy"; E. McCafferty and P. G. Moore, "Corrosion behavior of laser processed steels."

Crystal Growth

Holderness School

Edward A. Giess, chairperson; Franz Rosenberger, vice chairperson.

12 July. Metal organics and epitaxy (D. W. Shaw, discussion leader): G. B. Stringfellow, "Immiscibility in quaternary III–V compounds"; M. M. Faktor, "Metal organic chemical vapor deposition (MOCVD) of III–Vs"; R. F. Davis, "MOCVD of SiC." Chalcogenides (A. L. Gentile, discussion leader): J. B. Mullin, "Melt-growth and characterization of CdTe"; R. A. Wood, "Liquid phase epitaxy (LPE) of HgCd telluride"; H. C. Gatos, "Novel approaches to HgCdTe epitaxial growth."

13 July. Poster session (R. A. Laudise, discussion leader): M. M. Faktor, "III–V epitaxial growth by MOCVD"; N. Tamari, "Quaternary III–V LPE"; S. R. Sashital, "LPE growth of ternary chalcogenide chalcopyrite compounds"; R. R. Nitsche, "VLS-growth of argyrodite-type halide-chalcogenides"; Z. Inoue, "VLS growth of SiC polytype"; R. J. Schaefer, "Rapid solidification of Al alloys"; L. Jastrzebski, "Seeded growth of Si films"; G. A. Rozgonyi, "Rapid recrystallization of amorphous silicon"; R. S. Feigelson, "Laser-heated pedestal growth of a single crystal fiber"; I. J. Saunders, "Doped lithium tetraborate grown in a horizontal gradient"; J. L. Caslavsky, "Melt-growth of Nd-YAG"; W. Tolksdorf, "Expitaxial facets on garnet spheres"; B. M. Wanklyn, "Crystal growth in molten salt solutions"; G. M. Loiacono, "Solution crystal growth at constant temperature and supersaturation"; W. E. Langlois, "Simulation of magnetic Czochralski Si growth"; D. J. Stirland, "Characterization of defects in InP substrates"; R. C. Linares, "Semi-insulating GaAs growth." Morphological stability and rapid crystallization (W. R. Wilcox, discussion leader): R. F. Sekerka, "Morphological stability theory"; K. A. Jackson, "Solute trapping with laser annealing"; F. W. Young, Jr., "Rapid crystallization of semiconductors."

14 July. Oxides (W. Tolksdorf, discussion leader): V. V. Osiko, "Spectroscopic studies of stoichiometry deviations in garnets"; John M. Robertson, "Inhibitors of LPE growth of garnets"; H. J. Scheel, "Crystal growth of homogeneous oxide solid solutions." Surface topography (G. H. Gilmer, discussion leader): E. Bauser, "Growth steps, terraces and impurity segregation"; F. C. Frank, "Crystal growth without dislocations"; P. Bennema, "Monoatomic stepped patterns on crystals growing from solutions."

15 July. Bulk silicon growth and impurities (G. W. Cullen, discussion leader): A. Murgai, "Oxygen control in Czochralski silicon"; J. G. Wilkes, "Impurities in Czochralski Si"; T. Abe, "Impurities in Si single crystals—a current view." (H. Lessoff, discussion leader): J. F. Wenckus, "Cubic zirconia: a girl's next-best friend." Poster session.

16 July. Liquid encapsulated Czochralski-growth of III–V crystals (J. W. Nielsen, discussion leader): B. Cockayne, "Defects and properties of LEC InP crystals"; A. G. Elliot, "Low pressure LEC GaAs"; D. E. Holmes, "Growth and characterization of 3-inch high pressure LEC GaAs."

Cyclic Nucleotides

Kimball Union Academy

Martha Vaughan, chairperson; R. W. Butcher, vice chairperson.

14 June. Adenylate cyclase (A. G. Gilman, chairperson): M. D. Smigel, E. M. Ross, L. Stryer, speakers. Adenylate cyclase: desensitization and inhibitory receptors (S. Shaltiel, chairperson): J. P. Perkins, D. M. F. Cooper, speakers.

15 June. Regulation of cell cyclic nucleotide content (Jacques E. Dumont, chairperson): H. R. Bourne, J. Moss, V. C. Manganiello, speakers. Calcium, calmodulin, and cyclic nucleotides (C. O. Brostrom, chairperson): S. Kakiuchi, R. S. Adelstein, J. P. MacManus, speakers.

16 June. Protein kinases (J. D. Corbin, chairperson): K. Walsh, S. S. Taylor, T. Hunter, speakers. Phosphoprotein phosphatases (E. H. Fischer, chairperson): W. Merlevede, D. L. Brautigan, E. C. Y. Lee, speakers.

17 June. Phosphorylation and cell regulation (J. H. Exton, chairperson): R. M. Denton, P. Greengard, S. J. Pilkis, speakers. Compounds that inhibit CDP-choline synthesis, action potential-dependent Ca^{2+} channels, and stimulus-secretion coupling (M. Vaughan, chairperson): M. W. Nirenberg, speaker.

18 June. Cyclic nucleotides and protein metabolism (W. D. Wicks, chairperson): R. A. Jungmann, R. G. Crystal, speakers.

Poster sessions: 15, 16, and 17 June, 3 to 6 p.m. Coordinator: R. W. Butcher, University of Texas Health Science Center, 6901 Bertner, Houston, Texas 77025.

Dielectric Phenomena

Holderness School

William MacKnight, chairperson; Shiro Matsuoka, vice chairperson.

2 August. Theory (J. M. Deutch, session chairperson): D. Kivelson, "Molecular theory of dielectric relaxation in simple and not-so-simple liquids"; C. Brot, "The Onsager model for the static permittivity: Reconsideration of the treatment and some tests of applicability"; T. J. Lewis, "A simple general model for dielectric loss in solids." Breakdown in solids (J. J. O'Dwyer, session chairperson): R. J. Densley, "The long-term deterioration and breakdown of polymers"; R. Cooper, "Breakdown in diverging fields."

3 August. The processes of failure in ambient media (J. K. Nelson, session chairperson): R. E. Hebner, "Measurements of electrical breakdown in liquids"; L. G. Christophorou, "Breakdown strength of gaseous dielectrics"; G. A. Farrall, "The electrode surface as the key to vacuum breakdown." Instrumentation (J. Berberian, session chairperson): F. Mopsik, "Precision time domain measurements for audio frequencies and below"; R. H. Cole, "Permittivity measurements from 500 kHz to 5 GHz by bridge sampling methods."

4 August. Polymers I (F. E. Karasz, session chairperson): W. H. Stockmayer, "Dielectric properties of olefin/SO_2 copolymers in solution"; R. H. Boyd, "Aliphatic polyesters—model systems for dielectric relaxation in crystalline polymers"; Y. Wada, "Dielectric and electro-optic relaxations in polymer solutions." Polymers II (D. W. McCall, session chairperson): G. Williams, "Polymer liquid crystals"; R. S. Stein and S. D. Hong, "The effect of internal field on the optical and dielectric properties of solid polymers."

5 August. Related techniques (J. Pochan, session chairperson): G. Patterson, "Light scattering near the glass transition"; G. Chantry, "Recent attempts to understand and use dielectric dispersion data on liquids in the frequency range 1–3000 GHz"; A. Gerschel, "Towards a molecular chronophysics with new results of dipolar absorption studies in liquids." Poster session (J. E. Anderson, session chairperson).

6 August. Biological applications of dielectric relaxation (J. D. Hoffman, session chairperson): W. Vaughan, "Dielectric behavior of polyelectrolytes"; S. Takashima, "Non-linear dielectric phenomena in biological polymers and membranes."

Drug Carriers in Biology and Medicine

Plymouth State College

Thomas M. S. Chang, chairperson; Carl R. Alving, vice chairperson.

12 July. Opening remarks: T. M. S. Chang. Liposomes I (Gregory Gregoriadis, session chairperson): Gregory Gregoriadis, "Control of liposomes in vivo"; B. E. Ryman, "Application of liposome in medicine"; George Poste, "Liposome immunomodulators in modifying host defense." Liposomes II (Carl R. Alving, session chairperson): Carl R. Alving, "Liposomes in leishmaniasis and malaria"; Vincent Carides, "Use of liposomes in diagnostic imaging"; Isaiah J. Fidler, "Liposomes in macrophage activation and eradication of metastasis."

13 July. Artificial cells microcapsules (Thomas M. S. Chang, session chairperson): Thomas M. S. Chang, "Artificial cells as carriers for biologically active materials"; Paul J. Vasington, "Microencapsulation for monoclonal antibodies production"; David L. Gardner, "Ingestable microencapsulated urease-zirconium phosphate for urea removal"; Anthony M. Sun, "Implantation of microencapsulated islet cells in diabetic rats." Red blood cells as carriers (G. M. Ihler, session chairperson): G. M. Ihler, "Potential uses of erythrocytes as carriers for drugs, enzymes and DNA"; Ralph Green, "Red cell ghost delivery of iron chelators"; Robert J. Desnick, "Erythrocyte entrapment for in vivo enzyme delivery and immunologic protection."

14 July. Carriers for enzyme therapy (Mark Poznansky, session chairperson): Mark Poznansky, "Soluble-enzyme albumin polymer"; Roscoe O. Brady, "Strategies for targeting exogenous enzymes for effective replacement therapy in metabolic disorder"; Frank F. Davis, "Enzyme therapy using soluble enzyme–polyethylene glycol conjugates"; Ingvar Sjoholm, "Enzyme biodegradable microparticles in vivo." Carriers with antibodies for targeting (D. Papahadjopoulos, session chairperson): D. Papahadjopoulos, "Antibody-liposome targeting"; A. J. S. Davies, "Antibodies as carriers of anticancer drugs"; Ian Trowbridge, "Transferrin receptor as target for antibody-drug targeted therapy."

15 July. Carriers for controlled release of insulin and macromolecules (Robert S. Langer, session chairperson): Robert S. Langer, "Novel approaches in control release of macromolecules"; Perry L. Blackshear, "Insulin delivery by macroscopic implantable pump"; Anthony Cerami, "Glucose dependent insulin delivery system"; Franklin Lim, "Microencapsulated insulin for control release studies." Synthetic polymers as target directed carriers (E. P. Goldberg, session chairperson): Eugene P. Goldberg, "Tissue binding drugs for localized chemotherapy"; T. Kato, "Target directed microencapsules for drugs delivery."

16 July. Present status and future roles of drug carriers in biology and medicine: discussions by invited panelists followed by general discussions by all participants.

Drug Metabolism

Holderness School

Mary Vore, chairperson; David W. Yesair, vice chairperson.

26 July. Advances in biochemistry and

pharmacology of glutathione (Walter Levine, session chairperson): Donald J. Reed, "Status and function of inter-organ glutathione"; Neal Kaplowitz, "Importance and regulation of hepatic glutathione efflux"; Jerry R. Mitchell, "Toxic interactions in vivo between reactive intermediates and glutathione and glutathione peroxidase." The role of sulfur in secondary metabolism (Marjorie Horning, session chairperson): David Jollow, "Sulfur metabolism and the modulation of drug-induced hepatotoxicity"; Sandy Pang, "Localization of hepatic sulfotransferases by means of normal and retrograde liver perfusion"; Marjorie Horning, "Pathways of metabolism of glutathione adducts."

27 July. Cloning of enzymes of drug metabolism (Edward Bresnick, session chairperson): Charles Kasper, "Cloning of epoxide hydrase"; Y. Fujii-Kuriyama, "Multiple genes of phenobarbital-inducible cytochrome P-450 in rat liver"; Edward Bresnick, "Cloning of cytochrome P-450c." Use of stable isotopes in drug metabolism (Hugh Sullivan, session chairperson): Gerald T. Miwa, "The application of stable isotopes to biochemical mechanistic studies of the cytochrome P-450 system"; Thomas Walle, "Stereochemical aspects of metabolism of beta-receptor antagonist drugs: Use of stable isotope and GC-MS techniques."

28 July. Chemistry of covalent and noncovalent modification of cytochrome P-450 (Russell Prough, session chairperson): Paul Ortíz de Montellano, "Prosthetic heme adducts of heme proteins"; D. Mansuy, "Chemistry of metabolite complexes of cytochrome P-450"; Russell Prough, "Diversity of hydrazine metabolite complexes of cytochrome P-450." Renal disposition of drugs (Alfred Maass, session chairperson): William Hewitt, "Induction of renal transport and metabolism"; I. M. Weiner, "Renal transport of organic acids and bases"; Alfred Maass, "Complications of renal transport in pharmacokinetics."

29 July. Relationship of drug metabolism to toxicity (Almira Correia, session chairperson): Ronald Estabrook, "Arachidonic acid: a novel substrate for cytochrome P-450"; Lance Pohl, "Metabolic activation of halogenated hydrocarbons"; Dean Jones, "Toxicological implications of drug-stimulated H_2O_2 production in liver"; Almira Correia, "Morphine-induced hepatotoxicity"; Ronald Estabrook, "Travels with P-450-personalities and progress."

30 July. Pharmacogenetics (David Yesair, session chairperson): Werner Kalow, "Assessment and nature of monogenic deficiency of cytochrome P-450 functions in man"; Wendell W. Weber, "Acetylator status and drug-related human disease"; Joan Scott, "Genetic control of tolbutamide disposition."

Elastomers

Colby-Sawyer College

Emmanuel G. Kontos, chairperson; Joginder Lal, vice chairperson.

19 July. (A. Gent, session chairperson): C. Macosko, "Testing the theory of rubber elasticity with model networks"; R. H. Tobias, "Some physical properties of model elastomeric networks." (K. Dusek, discussion leader): B. Erman, "Molecular theory of rubber elasticity and the solution of boundary value problems: The effect of swelling in multiaxial states of stress." (G. Krauss, discussion leader): J. B. Class and S. G. Chu, "The effect of low molecular weight resins on the viscoelastic properties of elastomers."

20 July. (D. J. Meier, session chairperson): H. W. Starkweather, Jr., "Order and disorder in copolymers of ethylene and propylene"; T. Hashimoto, "Order-to-disorder transition in block copolymers." (N. Hadjichristidis, discussion leader): M. Morton, "Structure-property relations in amorphous and crystallizable ABA block copolymers." (E. G. Kontos, session chairperson): Poster presentations: R. D. Gilbert, "Block EP-copolymers"; J. R. Scholtens, "Viscoelastic behavior of EPDM networks"; H. Leeper, "Rubber elasticity and administration of drugs"; D. J. Meier, "High pressure effects on elastomers"; R. P. Quirk, "Linking reactions in anionic polymerization"; I. Kuntz, "Co-vulcanization."

21 July. (D. B. Patterson, session chairperson): J. S. Saam, "The synthesis of high molecular weight polydimethylsiloxane in aqueous emulsion"; M. Hirooka, "Recent advances in the polymerization and properties of alternating copolymers." (E. Tornquist, discussion leader): W. Kaminsky, "Elastomers by copolymerization of alpha-olefins and diolefins with a soluble Ziegler catalyst." (R. D. Gilbert, session chairperson): D. C. Blackley, "Dynamic mechanical properties of polyolefin blend thermoplastic rubbers"; A. Y. Coran and R. Patel, "Rubber-thermoplastic blends with technological compatibilization."

22 July. (B. Gunesin, session chairperson): S. L. Cooper, "Morphology and properties of polyurethane ionomers"; W. J. McKnight, "Ionic functional polymers and microphase separation." (D. W. Dwight, discussion leader): H. R. Thomas, "Application of XPS (ESCA) on elastomers." (H. Leeper, session chairperson): Ioannis V. Yannas, "Polymeric materials in surgery."

23 July. (L. H. Lee, discussion leader): J. T. Dickinson, "Fracto-emission from elastomers." (J. Moacanin, discussion leader): H. Munstedt, "Rheology of rubber-modified polymer melts."

Electron Donor-Acceptor Interactions

Brewster Academy

William C. Herndon, chairperson; Edward M. Engler, vice chairperson.

16 August. Chemical reactivity: J. K. Kochi, H. D. Roth, N. L. Bauld, speakers. C. T. complexes: H. A. Staab, R. M. Metzger, H. Mikawa, speakers.

17 August. Photoelectrochemistry: M. A. Fox, M. S. Wrighton, speakers. Dynamics: E. M. Kosower, K. S. Peters, K. B. Eisenthal, speakers.

18 August. Solids: F. Wudl, H. Kurda, Z. Soos. Polymers: G. E. Johnson, F. B. Kaufman, E. Engler, speakers.

19 August. Agregates: J. W. Verhoeven, Z. Yoshida, A. M. Trozollo, speakers. Poster session: T. Kobayashi, J. R. Miller, W. Rettig, speakers.

20 August. Magnetic field effects: U. Steiner, A. Weller, N. J. Turro, speakers.

The following people will be discussion leaders: P. R. Hammond, D. G. Whitten, E. Grunwald, K. A. Zachariasse, A. K. Colter, and H. Scher.

Electron Spectroscopy

Brewster Academy

Cedric J. Powell, chairperson; C. Richard Brundle, vice chairperson.

19 July. L. S. Cederbaum, "Many-body effects in photoionization of molecules"; J. L. Dehmer, "Overview of experimental and theoretical studies of resonance processes in molecular photoionization by single-photon and multiphoton excitation"; G. M. Bancroft, "Photoelectron spectroscopy of gas-phase inorganic and organometallic molecules"; N. Jonathan, "The use of vacuum ultraviolet photoelectron spectroscopy in studies of radicals and their positive ions."

20 July. N. D. Lang, "Theory of electronic properties of adsorbed rare gases"; W. F. Egelhoff, Jr., "XPS studies of thin metal films: Electronic-structure evolution, core-level shifts, and thermochemical analysis"; W. A. Goddard, III, "Spectroscopic properties and energy

levels of reaction intermediates on surfaces"; R. S. Bauer, "Problems and prospects in understanding semiconductor interfaces using electron spectroscopies."

21 July. R. R. Rye, "Local effects in Auger spectra of small molecules"; P. Weightman, "Localization effects on the Auger spectra of metals"; K. O. Legg, "Ion-beam-induced Auger spectra of elements and compounds"; J. E. Demuth, "Electron energy-loss spectroscopy of adsorbates on surfaces"; R. D. Leapman, "Core-electron energy-loss spectroscopy: Chemical effects, structural information, and microcharacterization of solids."

22 July. W. Eberhardt, "Angle-resolved photoemission from adsorbates"; J. Stöhr, "Surface EXAFS studies of chemisorption phenomena and Schottky-Barrier formation."

23 July. E. Kisker, "Spin-polarization studies of satellite structures"; H. Siegbahn, "ESCA studies of liquid-phase samples."

Environmental Sciences: Water

New Hampton School

Richard A. Conway, chairperson; Richard G. Zepp, vice chairperson.

Scientific Basis for Risk Analysis in Surface and Ground Waters

28 June. (Sam R. Petrocelli, discussion leader): Gilman D. Veith, "Structure-activity relationships for predicting toxic effects of chemicals on aquatic organisms"; Alan Maki, "Aquatic toxicology: Implications and decision criteria in environmental risk assessment." (Howard T. Odum, discussion leader): Sven E. Jorgensen, "Perturbation of ecosystems by anthropogenic activities."

29 June. (Samuel Karickhoff, discussion leader): E. K. Duursma, "Dynamics of adsorptive pollutants in estuaries"; Steven Eisenreich, "Dynamics of organics in lake sediments." (Otto Hutzinger, discussion leader): N. O. Crossland, "Fate and effects of chemicals in outdoor ponds *vs*. laboratory results."

30 June. (Paul V. Roberts, discussion leader): John Cherry, "Contaminant migration in ground water"; Dennis A. Laskowski, "Transport and attenuation of chemicals through soil." (René Schwarzenbach, discussion leader): Perry L. McCarty, "Biodegradation of trace organics in ground waters."

1 July. (Donald G. Crosby, discussion leader): Edo Pellizari, "Comprehensive analysis of organic chemicals in soil-water systems." Estimation of ground water-contamination potential of pesticides: Johann A. Guth, Part 1: "Laboratory studies"; Willard B. Nixon, Part 2: "Field studies." (J. Falco, discussion leader): Renate Kimbrough, "Human health effects associated with exposure to chemicals in water."

2 July. (Francois Morel, discussion leader): William Sunda, "Effect of trace metals and metal ratios of various species deviating from natural levels"; Sam C. Snedaker, "Fate of metals and organics in tropical intertidal zones."

Note: discussion leaders generally will make about a 10-minute presentation. Poster sessions are planned for Monday and Tuesday late p.m. Haines B. Lockhart will chair poster sessions.

Enzymes, Coenzymes and Metabolic Pathways

Kimball Union Academy

E. Thomas Kaiser and William Orme-Johnson, co-chairpersons; Perry Frey and Rowena G. Matthews, co-vice chairpersons.

12 July. Mechanism-based inhibitors: Brian Metcalf, Paul Ortez de Montellano, Richard Silverman, speakers. Kinases: Raymond Erikson, Anthony Hunter, Susan Taylor, speakers.

13 July. Transmembrane phenomena: Gunter Blobel, H. Gobind Khorana, Thomas Steitz, speakers. Interfacial enzymology: M. Krieger, M. F. Roberts, L. C. Smith, speakers.

14 July. One-carbon transformation: R. Abeles, J. Schloss, G. Thauer, C. Walsh, R. Wolfe, speakers.

15 July. Neurochemistry: Sheldon May, Michael Raftery, Michelle Lazundsky, speakers. Poster session.

16 July. New tools for the enzymologist: Directed mutagenesis: J. Abelson, D. Botstein, speakers. Old tools with new edges: W. W. Cleland.

Introduction of Macromolecules into Eukaryotic Cells

Holderness School

Harvey L. Ozer, chairperson; Frank Ruddle, vice chairperson.

28 June. Vectors (Richard Mulligan, chairperson): Richard Mulligan, "Retroviruses as vectors"; Peter Howley, "Papillomavirus DNA"; Mary Jane Gething, "Expression of influenza hemagglutinin in SV40 vectors." Modes of introduction (Mario Capecchi, chairperson): Mario Capecchi, "Microinjection: Role of 'enhancer' sequences"; Geoffrey Wahl, "Protoplast fusion: Introduction of an amplifiable gene."

29 June. Poster session. In vivo reconstitution (Frank Ruddle, chairperson): Frank Ruddle, "Expression of cloned genes in mice"; Erwin Wagner, "Introduction of genes into mice by egg injection and teratocarcinoma cells"; Mary-Dell Chilton, "Fate of T-DNA in regenerated plants."

30 June. Organization and reorganization of the mammalian genome. I (Harold Varmus, chairperson): Harold Varmus, "Insertional mutagenesis"; Alan Weiner, "Expression and rearrangements of moderate repetitive sequences"; Greg Hollis, "Pseudogenes." Organization and reorganization of the mammalian genome. II (Louis Siminovitch, chairperson): Louis Siminovitch, "Gene amplification and rescue"; W. French Anderson, "Expression of transfected globin genes"; Michael Botchan, "Role of 'enhancer' sequences in gene expression."

1 July. Organization and reorganization of the *Drosophila* genome (Michael Young, chairperson): Michael Young, "Dispensability of moderate repetitive sequences"; Paul Bingham, "Rearrangements at the *white* locus"; Matthew Scott, "Molecular organization of the *antennapedia* locus." Organization and reorganization of the yeast genome: Jeffrey Strathern, "Control of mating type in yeast"; Bik Tye, "Autonomous replicating sequences in yeast."

2 July. Cellular "cancer genes" (Harvey Ozer, chairperson): Michael Small, "Mouse cells transformed by carcinogens in culture"; Geoffrey Cooper, "Spontaneous and viral-mediated tumors"; Robert Weinberg, "Identification of 'cancer genes' from human tumors."

Fiber Science

Colby-Sawyer College

Ralph McGregor, chairperson; M. T. Watson, vice chairperson.

12 July. Development and consequences of structural order in fiber forming polymers (James P. Parker, discussion leader): A. S. Abhiraman, "Crystallization and orientation distributions in fiber formation"; Harry Brody, "The physical properties of polyethylene terephthalate fibers spun at high wind-up speeds." J. Spruiell, "Fibrillation in polypropylene yarns as affected by spinning and drawing conditions."

13 July. Interaction of radiation with solid polymers: Analysis and characterization (Ray Fornes, discussion leader):

Bob Ullman, "Neutron scattering from oriented polymer systems"; Tetsuya Sakai, "Some aspects of molecular motion and structure factor of polymers through TL and TSC method." H. K. Herglotz, "Polymer morphology studied by long wavelength x-ray scattering."

14 July. Surface properties of fibers (John Sibilia, discussion leader): Ruth Benerito, "Characterization of cotton fiber and chemically modified cotton fiber surfaces by ESCA, chemiluminescence and other techniques"; David W. Dwight, "Surface analysis of condensation polymers by ESCA/SEM." Interaction of dyes with polymers (Eb Williams, discussion leader): Toshiro Iijima, "Interaction of dyes with polyelectrolytes in solution—suggestive information in ionic dyeing."

15 July. Penetration of fibers by dyes: Henry Kobsa, "The measurement of rates of dyeing from finite dyebaths"; (Dieter Weigmann, discussion leader). Toru Masuko, "The equilibrium sorption of nonionic dyes by polyolefines"; (Eb Williams, discussion leader). Perception and measurement of color (Ralph McGregor, discussion leader): F. W. Billmeyer, "Color technology as an adjunct to fiber science."

16 July. Penetration of fibers by dyes (Tom M. Watson, discussion leader): Ronnie A. F. Moore, "Structure dyeability relationships in textile fibers." Mechanical properties of fiber assemblies (Tom M. Watson, discussion leader): Bhuvenesh C. Goswami, "Mechanics of fiber and fabric structure formation in spun bonding."

Fibronectin

Tilton School

John A. McDonald and Kenneth M. Yamada, co-chairpersons.

5–9 July. Introduction, historical overview, and fibronectin structure (Michael Mosesson, chairperson): Sen-Itiroh Hakomori and Torben Peterson, discussants. Fibronectin binding to purified macromolecules (Hynda Kleinman, chairperson): Helmut Hörmann, Maso Hayashi, and Edward Pearlstein, discussants. Role of fibronectin in organization of the extracellular matrix (Lloyd Culp, chairperson): Magnus Hook and Leo Furcht, discussants. Fibronectin and cell adhesion (Frederick Grinnell, chairperson): Robert Klebe, discussant, Fibronectin-cytoskeletal interactions (Richard Hynes, chairperson): R. Collins Hughes and David Rees, discussants. Fibronectin's role as a nonimmune opsonin (Thomas Saba, chairperson): Janos Molnar and Celso Bianco, discussants. Fibronectin in cell movement and neoplasia (Erkki Ruoslahti, chairperson): Lan Bo Chen and Jean Paul Thiery, discussants. Fibronectin in vivo (Antti Vaheri, chairperson): Charles Kuhn, discussant. Fibronectin in hemostasis and wound healing (Deane Mosher, chairperson): Mark Ginsberg, discussant.

All participants are encouraged to bring poster presentations of their current work for poster sessions. Session chairpersons will choose selected abstracts of posters for oral presentation during scheduled sessions if so desired by participants. If oral presentation during a scheduled session is desired, please send a one page abstract of your poster data to: Dr. John A. McDonald, Pulmonary Division, Jewish Hospital of St. Louis, 216 South Kingshighway, St. Louis, Missouri 63110.

Modeling of Flow in Permeable Media

Proctor Academy

Gordon W. Thomas, chairperson; Jim Douglas, Jr., and T. N. Narasimhan, co-vice chairpersons.

9 August. Mary Wheeler, "Finite element methods for reservoir engineering problems"; Joel Dendy, "In search of efficient adaptive multigrid methods"; Michel Dupuy, "A piecewise C^2 continuous interpolation procedure using rational cubic arcs"; Bjorn Enquist, "One sided difference method for hyperbolic conservation laws"; Ivo Babuska, "Modeling of water seeping—the adaptive approach."

10 August. George Brimhall, "Modeling oxidation processes in ore-forming environments"; Peter Raats, "Lagrangian approach to fluid and solute transport in porous media"; Bruce Finlayson, "A new, simple solution method for problems with discontinuous and sharp fronts." Poster session.

11 August. L. E. Scriven, "Pore space morphology and network approximations to flow and transport"; F. A. L. Dullien, "Application of the percolation theory using 3-D network models to the simulation of immiscible displacement in porous media"; Walter Rose, "Accounting for anisotropy in transport through porous media"; Irving Fatt, "Fluid flow through the porous tissues of the eye."

12 August. Long Nghiem, "Multiphase behaviour computation for compositional models"; Shend Tai Lee, "Approximate calculation of equilibrium fluid properties and phase equilibrium in compositionally dependent simulators"; Thomas N. Dixon, "Correlation of fluid properties"; John Chappelear, "Some mathematical aspects of numerical modeling of CO_2 flooding"; Larry Young, "The use of artificial dispersion in multiphase, multicomponent flow calculations."

13 August. Gunnar Fladmark, "A numerical method for local refinement of grid blocks applied to 3-D reservoir simulation"; Chieh Chu, "The ins and outs of thermal recovery simulation"; Karsten Pruess, "Numerical simulation of fluid and heat flow in fractured porous media."

Foams

Colby Sawyer College

P. B. Rand, chairperson; G. J. Murphy, vice chairperson.

2 August. (K. C. Frisch, discussion leader): R. A. Budnik, "Mechanism of organotin catalysis in polyurethane systems"; Sahio-wen Wong, "Catalysis of isocyanate reactions—monitoring of competitive reactions"; J. L. Guthrie, "Trace components in flexible polyurethane foams." (R. Armstrong, discussion leader): A. M. Kraynik, "Mechanical behavior of aqueous foams: Rheology and drainage"; R. K. Prud'homme, "Nucleation and enhancement of nucleation of gas bubbles in polymeric fluids."

3 August. (C. L. Kehr, discussion leader): M. Narkis, M. Puterman, and S. Kenig, "Three phase syntactic foams"; L. Norman, "Oil field stimulation foams"; G. K. Baker, "Room temperature vulcanized silicone foam: Manufacturing processes, chemistry and properties." (L. Rubens, discussion leader): M. B. Rhodes, "Analytical techniques for foams"; F. A. Shutov and J. J. Cahikin, "Dielectrical properties of foamed polymers."

4 August. (G. A. Campbell, discussion leader): F. E. Bailey, Jr., R. J. Zdrahala and J. T. Lindt, "Analysis of flow in foaming of water blown urethane foams"; W. H. Gill, D. W. Heinick, "The processing and physical properties of low density rim elastomers." (C. S. Eschbach, discussion leader): R. C. Trogelhof, "High speed puncture characteristics of thermoplastic structural foams"; P. Masi, L. Nicholas, M. Mazzola and M. Narkis, "Tensile properties of fiberglass reinforced polyester foams."

5 August. (R. Salovey, discussion leader): R. W. Flumerfelt, "Stability of gas-liquid interfaces"; F. Buttler, "Thermal conductivity of cellular plastics"; F. A. Shutov, "Foamed polymers

based on reactive oligomers as the high dispersive system." (H. G. Nadeau, discussion leader): A. Tewarson, "A look into the heat release of polymers"; R. M. Murch, "Smoke suppression in polyurethanes."

6 August. (J. Gall, discussion leader): P. Morkusch, "Inorganic-organic polymers and foams"; R. Turner, "Amine modification of reaction injection molding systems"; D. L. Kavanagh, "Investigation of cell growth in rigid polymeric foams utilizing a dynamic model."

Food and Nutrition

Colby-Sawyer College

James R. Kirk, chairperson; Walter Clark, vice chairperson.

Energy Utilization in Biological Systems

9 August. Effects of diet on mitochondrial and peroxisomal oxidation (Loran Bieber, chairperson): Paul Lazarow, "Peroxisome metabolism"; John Bremer, "Effects of dietary unsaturated fatty acids on mitochondrial and peroxisomal processes"; Loran Bieber, "Acylcarnitines—a link between mitochondrial and peroxisomal β-oxidation"; Janardan Reddy, "Effect of lipid lowering drugs on peroxisomes and mitochondria"; M. Thomas Clandinin, "Effects of diet on mitochondrial processes."

10 August. Mitochondrial and peroxisomal oxidation in energy metabolism (Loran Bieber, chairperson): Jean Himms-Hagen, "Brown fat and energy balance"; Ann Sullivan, "Energy utilization in obese rodents"; Peggy Borum, "Energetics and carnitine nutriture"; Charles Hoppel, "Carnitine in human obesity and hormonal deprivation"; Paul Lazarow, "Peroxisome biogenesis."

11 August. Lipid peroxidation: Mechanisms, measurement and biological significance (Paul Hochstein, chairperson): Paul Hochstein, "Introduction: Lipid peroxidation in biological systems"; Ned Porter, "Mechanisms of polyunsaturated fatty acid and phospholipid oxidation"; Glen Lawrence, "Volatile hydrocarbons and the detection of lipid peroxidation"; Alex Sevanian, "Lipid peroxidation in biological membranes"; Ching Chow, "Lipid oxidation, vitamin E and cancer"; Orville Levander, "Nutritional biochemistry of selenium"; Kelvin Davies, "Mitochondrial lipid peroxidation and exercise."

12 August. Effects of nutritive factors on functions of oxygenases and conjugative enzymes involved in bioactivation and detoxification (Fred Guengerich, chairperson): Fred Guengerich, "Introduction: A current view of enzyme systems involved in metabolism of xenobiotic compounds"; Steve Aust, "Lipid peroxidation"; Ann Benson, "Effects of antioxidants on detoxification enzymes"; Ronald Thurman, "Regulation of mixed function oxidation in intact cells: The role of nutrition." Judith Stern, "Is obesity a disease of inactivity?"

13 August. Effects of nutritive factors on functions on oxygenases and conjugative enzymes involved in bioactivation and detoxification: Alvito Alvares, "Interactions between nutritional factors and drug biotransformations"; M-T. Huang, "Activation of drug metabolism"; Ronald Farris, "Novel effects of nutrition on carcinogen metabolizing enzymes."

Friction, Lubrication and Wear

Colby-Sawyer College

W. A. Glaeser, chairperson; L. B. Sargent, Jr., vice chairperson.

14 June. (Douglas Godfrey, discussion leader): Lavern D. Wedeven, "Interdisciplinary assessment of lubricated contacts"; Donald Buckley, "Surface analysis"; M. T. Thomas, "Surface analysis"; James L. Lauer, "Phenomena at moving phase boundaries"; P. A. Willermet, "Antiwear additive chemistry."

15 June. (K. H. Zum Gahr, discussion leader): K. H. Zum Gahr, "Microstructural aspects of abrasion"; L. K. Ives, "Wear microstructure"; Kirit Bhansali, "Role of stacking fault energy in galling wear." (David A. Rigney, discussion leader): David A. Rigney, "Energy-based friction models"; S. Ramalingam, "Friction theory."

16 June. (Herbert Cheng, discussion leader): Herbert Cheng, "Micro elastohydrodynamics"; W. J. Bartz, "Viscosity in EHD contacts"; Christopher M. McC. Ettles, "Bearing film dynamics"; Jay Daniels, "Mount St. Helens."

17 June. (Jerrold W. Kannel, discussion leader): Kenneth Ludema, "Design of tribological systems"; Paul Brown, "Design of rolling element bearings." (W. R. D. Wilson, discussion leader): W. R. D. Wilson, "Metal working lubrication"; Allen T. Male, "Metal working lubrication."

18 June. (Horst Czichos, discussion leader): Horst Czichos, "Tribological investigations and surface studies on simple, composite, and reinforced polymers"; Brian Briscoe, "Wear and friction of polymers."

Fuel Science

Tilton School

Duayne D. Whitehurst, chairperson; Leon Stock, vice chairperson.

12 July. Composition of fossil fuels (Randall Winans, session chairperson): R. A. Wind, "New nuclear magnetic resonance techniques in coal characterization"; John F. McKay, "Composition and recovery of organic material from Green River shale"; M. Farcasiu, "The role of polyalkyl aromatic structures in fossil fuel chemistry"; P. Given, "Cellulose and lignin as inputs to coal formation."

13 July. Chemistry of fossil fuels (Karl S. Vorres, session chairperson): R. C. Neavel, "Correlation of coal behavior and composition"; G. Dyrkacz, "Coal maceral chemistry." Poster session (Leon Stock, chairperson). Alan K. Burnham, "Kinetics and mechanisms of shale pyrolysis"; D. Punwani, "Peat gasification kinetics."

14 July. Catalysis in synfuel formation (Irving Wender, session chairperson): P. Jacobs, "Catalysis of Fischer-Tropsch reactions by zeolites"; J. W. Rosenthal, "Differences in hydrogenative behavior between shale oil and coal liquids." Poster session. R. Lang, "Anion effects in alkali catalyzed steam gasification"; G. W. Simmons, "Recent advances in understanding of methanol synthetics catalysts."

15 July. Fuels from biomass (A. Mills, session chairperson): G. Tsao and M. Chang, "Alcohol fuels from cellulosic biomass"; P. Bjornbom, "Hydrocarbon fuels from peat and wood"; C. L. Cooney, "Fuels from biomass—potentials and constraints."

16 July. Selected poster session presentations (Leon Stock, session chairperson).

Fungal Metabolism

Plymouth State College

J. S. Lovett and C. H. Nash, co-chairpersons; C. A. Raper and J. Van Etten, co-vice chairpersons.

5 July. Regulation of secondary metabolism—present and future directions (Maurice Gaucher, session chairperson). Mechanisms of initiation (I. M. Campbell, discussion leader): A. L. Demain, "Initiation of secondary metabolism"; R. H. Doi, "RNA polymerase specificity and microbial differentiation." Mechanisms of inactivation (D. Westlake, discussion leader): M. G. Gaucher, "Cessation of secondary metabolism"; R. L.

Switzer, "In vivo inactivation of enzymes."

6 July. The biochemistry of the fungal cell envelope and drugs affecting it (Walter Wehrli, session chairperson). The biochemistry of the fungal cell wall: G. W. Gooday, "Chitin: Biosynthesis and function"; E. Cabib, "Biochemistry of glucan and other cell wall components." The fungal plasma membrane: Biochemistry and inhibitors (H. van den Bossche, discussion leader): D. S. Feingold, "The biochemistry of the fungal plasma membrane"; G. Medoff, "Antifungal agents affecting the plasma membrane."

7 July. Organelle structure and function (J. S. Lovett, session chairperson). Ultrastructure and function of organelles (J. S. Lovett, discussion leader): C. E. Bracker and M. J. Powell, "Ultrastructural and cytochemical characterization of isolated cell components from fungi"; G. A. Scarborough, "The *Neurospora* plasma membrane proton pump"; S. Brody, "The role of mitochondria in circadian rhythms of *Neurospora*." (S. Bartnicki-Garcia, discussion leader): J. Ruiz-Herrera, "Chitosome structure and function"; C. P. Selitrennikoff, "Cell wall assembly of *Neurospora*."

8 July. Molecular genetics of fungi (W. E. Timberlake, session chairperson): R. L. Metzenberg, "5*S* RNA genes of *Neurospora:* What keeps them honest?"; P. Sypherd, "Mutants, molecules and morphogenesis in *mucor*"; N. H. Giles, "Gene organization and regulation in *Neurospora crassa:* Evidence from cloning the *qa* (quinic acid) gene cluster"; M. Holland, "Structure and expression of yeast glycolytic genes"; W. E. Timberlake, "Organization of a large, developmentally regulated gene cluster in *Aspergillus nidulans*"; C. Scazzocchio, "Patterns of control and gene organization in metabolic pathways of *Aspergillus nidulans*."

9 July. Virulence factors in physiopathogenic fungi (J. Van Etten, session chairperson). (J. Van Etten, discussion leader): O. C. Yoder, "Genetics and role of host-specific toxins in pathogenesis"; J. M. Daly, "Structure and activity of host-specific toxins"; L. D. Dunkle, "Mode of action of host-specific toxins."

In addition to the program presented above, participants are encouraged to submit posters on the topics covered by the conference. Maximum space available for individual posters is 4 by 8 feet. Applicants should indicate their intention to present a poster and include a brief title of the anticipated presentation with their application.

Hemostasis

Proctor Academy

Virginia Donaldson, chairperson; Thomas S. Edgington, vice chairperson.

21 June. Megakaryocyte growth and development and platelet growth factor (J. Levin, discussion leader): N. Williams, "Growth of megakaryocyte from precursor cells"; E. M. Rabellino, "Human megakaryocyte growth and development"; T. F. Deuel, "Platelet-derived growth factor—cellular interactions"; R. D. Rosenberg, "Release of heparin-like molecules from endothelial cells by platelet endoglycosidase and their role in regulating smooth muscle cell proliferation." Platelet membranes and functions (B. S. Coller and E. F. Luscher, co-discussion leaders): B. Furie, "Murine and human monoclonal antibody to human platelets"; T. J. Kunicki, "Spatial interactions of glycoproteins in intact platelet membranes as determined by chemical cross-linking reagents"; Y. LeGrand, "Platelet binding to macromolecular components of subendothelium"; J. P. Caen, "Grey platelet syndrome megakaryocytes and myelobfibrosis."

22 June. Biosynthesis of procoagulants (G. M. Fuller, discussion leader): G. Crabtree, "Structural relationships among rat fibrinogen genes"; S. J. F. Degen, "Human prothrombin gene"; H. Roberts, "Interactions of abnormal Factor IX molecules"; H. Reisner, "Human antibody to Factor IX as a probe of dysmorphic Factor IX molecules." Fibrinolysis (F. J. Castellino, discussion leader): D. Pennica, "Gene for plasminogen activator"; F. Bachmann, "Physiologic activation of plasminogen"; D. Luskotoff, "Regulation of fibrinolytic activity by cultured endothelial cells"; F. B. Taylor, "Regulation of whole blood clot lysis by adherent lymphocytes and activated protein C."

23 June. Protein C (J. Stenflo, discussion leader): C. T. Esmon, "Protein C: Activation requirements and cofactors"; P. C. Comp, "In vivo activation of protein C"; J. H. Griffin, "Human protein C"; T. S. Edgington, "Protein C cleavage of the human Factor VIII C protein." Prothrombin and its conversion (M. Nesheim, discussion leader): B. Foster, "Monoclonal antibody probes of forms of Factor V"; P. Tracy, "Factor Va processing and interactions"; B. C. Furie, "Prothrombin cleavage in plasma"; Y. Nemerson, "Factor VII zymogen and regulator molecule"; D. P. Kosow, "Metal ions in prothrombin activation."

24 June. Fibronectin, thrombospondin and platelets (D. F. Mosher, discussion leader): M. Ginsberg, "Fibronectin and platelets"; H. S. Slayter, "Thrombospondin"; L. L. K. Leung, "Thrombospondin and platelet function"; R. N. Pinckard, "Platelet activation factor."

25 June. Endothelium, blood cells and clotting (M. A. Shuman, discussion leader): N. L. Baenziger, "Receptor regulation and prostaglandin synthesis"; R. I. Handin, "Interaction of platelets with vascular neointima"; E. F. Plow, "Leukocyte elastase and clotting."

Chemistry of Heterocyclic Compounds

New Hampton School

H. B. Renfroe, chairperson; Albert Padwa, vice chairperson.

12–16 July. W. Steglich, "New synthetic methods based on oxazolinone and oxazinone chemistry"; J. Herrmann, "Chemistry of cyclopentapyrrols"; J. Lechleiter, "Synthetic applications of mononuclear heterocyclic rearrangements"; E. Trybulski, "Organopalladium chemistry—facile approaches for the synthesis of heterocyclic systems"; L. Hegedus, "Synthesis of heterocyclic compounds using transition metal reagents"; S. Godleski, "Palladium catalyzed synthesis of spirocycles"; E. Kosower, "Pyridinyl radicals and radical dimers"; W. Kaim, "Reductively silylated 1,4-diazines: Simple heterocycles with unusual properties"; R. Gamill, "The chemistry of chromones and furochromones"; L. Ghosez, "New methods for heterocyclic synthesis"; V. Jäger, "Isoxazolines: Unique aldol analogues"; G. Keck, "Natural products from carbohydrates"; G. Kraus, "Selective electrophilic reactions for alkaloid synthesis"; G. Gribble, "Metalated heterocycles in alkaloid synthesis"; A. Kende, "Streptonigrin and palladium-based syntheses"; D. Widdowson, "Heterocyclic syntheses via arene chromium tricarbonyl complexes"; O. Meth-Cohn, "Making the most of nitrenes—a synthetic heterocyclic challenge."

Physics and Chemistry at High Pressure

Kimball Union Academy

Malcolm Nicol and Marvin Ross, co-chairpersons.

5 July. I. Silvera, "Molecular hydrogen at high density: Phase transitions and the equation of state"; J. M. Besson, "High pressure phases of rare gases in the diamond anvil cell: ^{4}He and Xe"; R. Jeanloz, "High pressure chemistry of

the earth's deep interior"; D. Stevenson, "Condensed matter physics of the giant planets"; H. K. Mao, "Behavior of solidified gases at high pressure."

6 July. A. K. McMahan, "Equations of state and phase stability from electron band theory"; M.-T. Yin, "Theoretical study of pressure-induced phase transformations in group IV elements"; N. Ashcroft, "Reduction of shock hugoniots from liquid state thermodynamics"; H. Skriver, "The alkaline earths under pressure"; S. Liu, "Effects of pressure on magnetism in metals"; D. McWhan, "Commensurate-incommensurate transitions in novel systems."

7 July. W. B. Holzapfel, "s-d transfer and phase transitions in rare earth and transition metals"; K. Syassen, "Optical properties of metallic systems under pressure"; H. d'Amour, "The crystal structure of O_2 to 85 kbar"; D. Schiferl, "Crystallography of O_2 and Xe under high pressures"; H. Drickamer, "Opti-

Program Summary, Gordon Research Conferences

	Colby-Sawyer College (N) New London	Colby-Sawyer College (S) New London	New Hampton School New Hampton	Kimball Union Academy Meriden	Tilton School Tilton
14–18 June	Friction, Lubrication and Wear		Nucleic Acids	Cyclic Nucleotides	Theoretical Biology and Biomathematics
21–25 June	Nuclear Chemistry		Photoconductivity and Related Phenomena	Lipid Metabolism	Animal Cells and Viruses
28 June–2 July	Catalysis	Nuclear Structure Physics	Environmental Sciences: Water	Lasers in Medicine and Biology	Nuclear Proteins, Chromatin Structure and Gene Regulation
5–9 July	Polymers	Renewable Resources, Chemicals and Materials from	Mutagenesis, Biological and Chemical Mechanisms of	High Pressure, Research at	*Fibronectin
12–16 July	Fiber Science	*UV/Visible Multiphoton Ionization and Dissociation Processes	Heterocyclic Compounds, Chemistry of	Enzymes, Coenzymes and Metabolic Pathways	Fuel Science
19–23 July	Elastomers	*Origin of Life	Organic Reactions and Processes	Bones and Teeth, Chemistry, Physiology and Structure of	Metal-Insulator-Semiconductor Systems
26–30 July	Corrosion	Chemotherapy of Experimental and Clinical Cancer	Natural Products	Interfaces, Chemistry at	High Temperature Chemistry
2–6 August	Medicinal Chemistry	Foams	Statistics in Chemistry and Chemical Engineering	Toxicology and Safety Evaluations	Ionic Channels in Muscle and Other Excitable Membranes
9–13 August	Food and Nutrition	Photonuclear Reactions	Inorganic Chemistry	Hormone Action	Magnetic Resonance in Medicine and Biology
16–20 August	Separation and Purification		Analytical Chemistry	Postharvest Physiology	Plasma Chemistry
23–27 August	Cancer		Adhesion, Science of	Bioengineering and Orthopedic Science	*Cardiac Glycosides

*New conferences in 1982

cal spectroscopy at high pressures"; F. Bundy, "Electrical behavior of a number of elements at high pressure and low temperature."

8 July. J. Jonas, "New developments and applications in NMR at high pressures"; A. Angell, "Pressure-enhancement of fluidity in cold aqueous and hot siliceous (geochemical) solutions"; F. Ree, "High temperature and high pressure behavior of polyatomic molecules." Poster session: "New results and techniques." (Prospective contributors to the poster session should communicate their interest to one of the conference cochairpersons.)

9 July. L. Barker, "Dynamic isentropic loading techniques"; R. Graham, "Shock-induced solid-solid material synthesis"; R. Boehler, "Adiabatic compression measurements of the Grüneisen parameters of lithium, sodium, and potassium at high pressures and temperatures."

1982 Schedule—New Hampshire

Proctor Academy Andover	Holderness School Plymouth	Brewster Academy Wolfeboro	Plymouth State College (N) Plymouth	Plymouth State College (S) Plymouth
*Basement Membranes	Structural Polymers, Chemical Characterization of	Physical Organic Chemistry	Water and Solute Exchange in the Microvasculature, Physico-Chemical Aspects of	
Hemostasis	Biological Regulatory Mechanisms	Radical Ions	Holography and Optical Information Processing	Plant Molecular Biology
Lysosomes	Eukaryotic Cells, Introduction of Macromolecules into	Radiation Chemistry	Stereochemistry	Proteolytic Enzymes and Their Inhibitors
CO_2 Fixation by Green Plants	Biopolymers, Physics and Physical Chemistry of	Mammalian Genital Tract	Fungal Metabolism	Synthetic Membranes
Physical Metallurgy	Crystal Growth	Microstructure Fabrication, Chemistry and Physics of	Pulmonary Biology: Lung Injury	Drug Carriers in Biology and Medicine
Polymer Physics	Particle-Solid Interactions	Electron Spectroscopy	Quantum Solids and Fluids	Microbiological Safety of Food
Molecular Biology, Diffraction Methods in	Drug Metabolism	Atomic and Molecular Interactions	Solid State Chemistry	*Oscillations and Dynamic Instabilities in Chemical Systems
Bioelectrochemistry	Dielectric Phenomena	Pyrroles	Magnesium in Biochemical Processes and Medicine	Microbial Toxins and Pathogenicity
Modelling of Flow in Porous Media	Water and Aqueous Solutions, Chemistry and Physics of	Molecular Electronic Spectroscopy	Ceramics, Solid State Studies in	
Organometallic Chemistry	Immobilized Species and Other Active Molecules	Electron-Donor-Acceptor Interactions	Coatings and Films, Chemistry and Physics of	
Mammalian Gametogenesis and Embryogenesis	Organic Geochemistry	Vibrational Spectroscopy		

High Temperature Chemistry

Tilton School

Wayne L. Worrell, chairperson; Karl E. Spear, vice chairperson.

26 July. Kinetics of gas phase reactions (D. L. Hildenbrand, discussion leader): C. E. Kolb, "Kinetic measurements of free radical and gaseous species"; P. J. Dagdigian, "The oxidation of alkaline earth metal vapors by N_2O." Surface reactions (G. M. Rosenblatt, discussion leader): D. Wayne Goodman, "Relationships between surface structure and catalytic reactivity"; P. Nordine, "Chlorine reactions at metal-oxide surfaces." Invited poster session on recent advances in high temperature chemistry.

27 July. Chemical vapor transport (P. Gillis, discussion leader): H. Oye, "Complex halide vapors and their significance in vapor transport"; H. Wiedemeier, "Chemical vapor transport and thermodynamic analysis of metal-chalcogenide-halide systems." Novel investigations of corrosion reactions (J. B. Wagner, Jr., discussion leader): R. A. Rapp, "Hot corrosion reactions of metals with thin salt films"; A. S. Nagelberg and J. C. Hamilton, "In-situ Raman spectroscopic characterization of corrosion reaction products." Invited poster session on recent advances in high temperature chemistry.

28 July. Thermodynamics of liquids and glasses (L. Brewer, discussion leader): M. Blander, "Thermodynamic properties of ordered liquid mixtures"; A. Navrotsky, "Structural interpretations of the thermodynamic properties of glasses and crystals." Solid state electrochemistry (C. B. Alcock, discussion leader): R. Dieckmann, "Transport properties of some transition-metal oxides"; G. C. Farrington, "High conductivity solid electrolytes." Invited poster session on recent advances in high temperature chemistry.

29 July. Ab initio calculations of molecular structure and properties (W. Weltner, discussion leader): H. F. Schaefer, "Ab initio calculations of the structure and properties of transition-metal gaseous hydrides"; J. O. Arnold, "Ab initio calculations of the properties of molecules and 'atomic clusters': Current capabilities and future prospects." Panel discussion: Nuclear reactor accident modeling and high temperature chemistry. Overview: D. D. Cubicciotti. Specific aspects: D. Orlander, M. Adamson, R. Sallach, and P. Potter.

30 July. Spectroscopy of high temperature molecules (J. W. Hastie, discussion leader): D. H. Levy, "Spectroscopy in supersonic molecular beams: The fluorescence of NaI"; M. Vala, "Magnetic circular dichroism spectra of matrix isolated high temperature molecules."

Holography and Optical Information Processing

Plymouth State College (N)

Nicholas George, chairperson; James C. Wyant, vice chairperson.

21–25 June. The conference will include the following topics: Holographic optical elements; Optical signal processing; Image processing; Robotics; Devices: Incoherent-to-coherent interfaces, Video disc, Deformable mirrors; Optical computing; Matrix-oriented processing; Speckle; Image restoration; and New applications in industry, medicine, and defense.

A partial listing of the invited speakers follows: Harrison H. Barrett, "Optical processing in radon space"; Steven R. Case, "Partitioned holographic optical elements"; John Caulfield, "Optical systolic array processors and their close relatives"; Jan Grinberg, "Advances in the CCD-liquid crystal light valve"; L. J. Horbeck, "Deformable mirror displays"; Adolf Lohmann, "The role of higher order correlations in optical information processing"; and Poohsan Tamura, "A spatial integration method for ambiguity function processing."

Hormone Action

Kimball Union Academy

John Baxter and Maria Dufau, co-chairpersons; William T. Schrader, vice chairperson.

8 August. Plenary lecture: Raymond L. Erickson, "Protein kinases encoded by avian sarcoma viruses."

9 August. Steroid hormone action (John D. Baxter, chairperson): Bert W. O'Malley, "Studies on eukaryotic gene expression"; William T. Schrader, "Progesterone receptors"; Thomas Spelsberg, "Nuclear acceptors for steroid receptors"; Jan-Ake Gustafsson, "Structure and specific DNA binding of the glucocorticoid receptor." Insulin action (Ronald Kahn, chairperson): Joseph Larner, "Second messenger(s) for insulin action"; Ora Rosen, "Phosphorylation in insulin action"; Samuel Cushman, "Translocation of glucose transporters in insulin action."

10 August. Peptide hormone action (Kevin Catt, chairperson): Mark Willingham, "Internalization of polypeptide hormones"; Barry Posner, "Polypeptide hormones: Intracellular receptors and internalization"; Robert Lefkowitz, "Catecholamine receptors: Characterization and regulation"; Evan Simpson, "Regulation of adrenal steroidogenesis: Induction of cytochrome P-450 and related enzymes by ACTH in the adrenal cortex." Receptor-cyclase coupling (Gordon Gill, chairperson): Stanley Korenman, "Regulation of adenylate cyclase in the control of uterine contractility"; Maria Dufau, "Gonadotrophin receptors and Leydig cell activation"; Bernard P. Schimmer, "Genetic studies on ACTH action."

11 August. Phospholipids in hormone action (Julius Axelrod, chairperson): Fusao Hirata, "Biochemical cascades of phospholipid metabolism in hormone action"; Y. Nishizuka, "Phosphatidylinositol turnover and cyclic nucleotides in hormone action"; John Fain, "Phospholipid turnover and hormone action"; Robert Farese, "Intermediate role of the phosphatidate-polyphosphoinositide cycle in peptide hormone action." Poster session (Suzanne Bourgeouis, chairperson). Steroid and thyroid hormone action (Herbert H. Samuels, chairperson): Geoffrey Green, "Immunochemical approaches to the study of the estrogen receptor"; David Shapiro, "Estrogen regulation of vitellogenin gene expression"; Jack Oppenheimer, "The effect of thyroid hormone at the genomic level."

12 August. Hormone action after gene transfer (Norman L. Eberhardt, chairperson): Gordon Ringold, "Glucocorticoid regulation of fragments of the mouse mammary tumor virus genome"; David Kurtz, "Glucocorticoid regulation of the transferred α_{2u}-globulin genome"; John E. Majors, "Glucocorticoid regulation of mouse mammary tumor virus gene expression"; Manjapra V. Govindan, "Interaction and in vitro initiation of transcription by glucocorticoid hormone-receptor complexes of mouse mammary tumor virus." Poster session (Suzanne Bourgeouis, chairperson). Steroids (Guy Rousseau, chairperson): Ron Evans, "Calcitonin genc expression"; Pierre Chambon, "Function of hormonally inducible genes"; Olaf Pongs, "Ecdysone binding to polytene chromosomes."

13 August. Calcium and growth factors (Anthony Means, chairperson): Anthony Means, "Regulation of calmodulin"; James C. Garrison, "Calcium-dependent phosphorylation of hepatic enzymes"; Stanley Cohen, "Mechanism of EGF action."

Immobilized Species

Holderness School

A. H. Nishikawa, chairperson; H. Swaisgood, vice chairperson.

16 August. Analytical uses (I. Chaiken, discussion leader): M. DeLuca, "Immobilized enzymes and bioluminescent assays"; D. Hnatowich, "Immobilized species in nuclear medicine"; T. T. Ngo, "Enzyme-immunoassays"; B. Mattiasson, "Partition affinity ligand assay"; B. Dunn, "Quantitative affinity chromatography."

17 August. Synthetic applications (G. Royer, discussion leader): G. Wulff, "Molecular imprinting immobilized species"; C. Leznoff, "Applications of insoluble polymer supports in organic synthesis"; K. Ogilvie, "Solid-phase synthesis of polynucleotides"; M. Vert, "Bioresorbable synthetic polymers for temporary biomedical uses."

18 August. Therapeutic applications (H. Swaisgood, discussion leader): M. Wilchek, "Antibodies as carriers for drugs"; A. Sehon, "Induction of immunological tolerance by conjugates of polymers with antigens and haptens"; J. Johnson, "Polymeric drugs as hypocholesterolemics"; J. Anderson, "Sustained drug release from drug bound polymers."

19 August. Medical applications (A. H. Nishikawa, discussion leader): P. K. Ray, "Extracorporeal affinity sorbents in cancer treatment"; C. J. Holloway, "Immobilized enzymes in extracorporeal detoxification systems"; R. Langer, "Drug delivery and drug removal systems"; Th. Staehelin, "Hybridomas and interferon."

20 August. Biochemical processing uses (H. R. Horton, discussion leader): K. Mosbach, "Immobilized enzymes and genetic engineering"; A. Tanaka, "Immobilization of biocatalysts by prepolymer methods and their applications"; C. Bucke, "Immobilization in alginate gels."

Conferees are invited upon arrival to submit to the chairperson one-paragraph abstracts for 10-minute presentations.

Inorganic Chemistry

New Hampton School

G. D. Stucky, chairperson; Alan Conley, vice chairperson.

9 August. Layered and channel materials (chairperson to be announced): John Thomas, "Zeolite structure"; Neil Ray, "Lentz characterization of silicates"; Matt Marroco, "Layered zirconium phosphates." New vistas in electron transfer processes (Albert Haim, session chairperson): Norm Sutin (subject to be announced); John Endicott (subject to be announced).

10 August. Charge transport through media (session chairperson to be announced): Royce M. Murray, "Electrode stability and electrochemistry"; Stephen Isied (subject to be announced); Michael Weaver (subject to be announced). Sulfur chemistry (session chairperson to be announced): T. Rauchfuss, "Transition metal sulfur chemistry"; Ed Deutsch, "Sulfur chemistry and electron transfer."

11 August. Biochemical aspects of sulfur and electron transfer chemistry (session chairperson to be announced): Orme Johnson (subject to be announced); Lewis Siegel, "Biochemical aspects of electron transfer and surface chemistry"; Bruce Averill (subject to be announced); Richard Holm, "Chemical aspects of sulfur chemistry." Heterogeneous catalysis (session chairperson to be announced): Russell R. Chianelli, "Heterogeneous catalysis using layered sulfides"; Paul Biloen (subject to be announced).

12 August. Sulfur and phosphorous ligand chemistry (Al Cowley, session chairperson): Tristram Chivers, "Sulfur-nitrogen rings and cages"; Mary Rakowski DuBois, "Sulfur and related chemistry"; H. Vahrenkamp, "Main group chemistry"; Bob Madix, "Solid state surface chemistry"; Robert Burwell, "Supported transition metal and rare earth catalysis."

13 August. Carbonylation catalysis (Stan Wreford, session chairperson): John Knifton (subject to be announced); Jack Halgren (subject to be announced); John Bercaw (subject to be announced).

Chemistry at Interfaces

Kimball Union Academy

J. Adin Mann, Jr., chairperson; Lawrence Benjamin, vice chairperson.

26 July. Chemistry at solid surfaces (John Yates, session chairperson): Barbara Garrison, "The dynamics of particle ejection from solid surfaces"; Robert Madix, "Adsorption of complex organic molecules and metal surfaces"; Gert Ehrlich, "Atomic motions on solids"; Horia Metiu, "Dynamical processes on surfaces."

27 July. Surfactants and interfaces (H. Ted Davis, session chairperson): M. Moldover, "Wetting at interfaces and thin film transitions: Experimental"; H. Ted Davis, "Wetting at interfaces and thin film transition: Theoretical"; J. Fendler, "Characterization and utilization of polymer vesicles."

28 July. Interfacial chemistry in biology (Adrian Parsegian, session chairperson): G. Shipley (subject to be announced); Norman L. Gerschfeld (subject to be announced); Adrian Parsegian (subject to be announced).

29 July. Monolayers on liquids; dynamic light scattering from interfaces (Robert V. Edwards, session chairperson): S. Hardy, "Surface tension of liquid metals at elevated temperatures"; Albert Bevolo, "Oxide monolayers on liquid metals at elevated temperatures: A RHELS study"; Sverker Hård and Ronald D. Neuman, "Laser light-scattering from monolayers"; J. B. Lanoau, "Preparation and characterization of polymer monolayers and multilayers"; Egon Matijevic (subject to be announced).

30 July. Computer simulation of interfacial properties (Barbara Hale, session chairperson): D. Landau, "Monte Carlo studies of adsorbed layers"; K. Gubbins, "Fluid structure near an interface"; L. Pratt, "Monte Carlo studies of simple micelles"; M. Mezei and D. L. Beveridge, "Monte Carlo studies of the liquid structure around biologically important solutes."

Poster session chairperson: Dr. L. Benjamin, Procter & Gamble Company, Miami Valley Laboratory, P.O. Box 39175, Cincinnati, Ohio 45247.

Lasers in Medicine and Biology

Kimball Union Academy

A. J. Welch and Michael W. Berns, co-chairpersons; David H. Sliney, vice chairperson.

28 June–2 July. Clinical and surgical applications of lasers. Biomedical, biological, and surgical applications of lasers. Advances in instrumentation and technology. Laser applications in vision and ophthalmology. Laser applications in cell biology. Basic photoradiation therapy. Clinical photoradiation therapy. Picosecond phenomena in biology and medicine. New developments in laser applications in medicine and biology. Speakers to be announced.

Lipid Metabolism

Kimball Union Academy

Julian B. Marsh, chairperson; Christian R. H. Raetz, vice chairperson.

21 June. Cell membranes and lipids (Christian Raetz, chairperson): Rosalind Coleman, "Phospholipid topogenesis in higher eukaryotic cells"; Christian

Raetz, "Animal cell mutants dependent on exogenous phosphatidylcholine for membrane biogenesis"; Michael Sinenski, "The somatic cell genetic analysis of the regulation of cholesterol biosynthesis." Lipid-protein interactions (Michael Phillips, chairperson): Joel Morrisett, "Structure of liver perfusate and model lipoproteins resembling nascent HDL"; G. Graham Shipley, "Diffraction and NMR studies of plasma lipoproteins"; Sissel Lund-Katz, "Packing of cholesterol molecules in high density lipoproteins"; James Hamilton, "Solubility and location of nonpolar lipids in phospholipid surfaces"; Verne Schumaker, "Isolation and characterization of apolipoprotein B."

22 June. Apolipoprotein B (Richard Havel, chairperson): Richard Havel, "Current concepts of the metabolism of hepatic and intestinal apo B"; Nome Baker, "Approaches for studying plasma VLDL and VLDL remnant turnover in rats: Apo B and triglyceride kinetics"; Ronald Krauss, "Differences in metabolic relationships of LDL subclasses"; Scott Grundy, "Role of apo B in the regulation of lipoprotein production." HDL metabolism (Shlomo Eisenberg, chairperson): Gerd Assman, "Role of LCAT in HDL interconversion"; Heiner Greten, "Functions of hepatic triglyceride lipase in HDL metabolism"; Shlomo Eisenberg, "Intravascular dynamics of the HDL system"; Richard Deckelbaum, "Triglyceride-cholesterol ester exchange and lipolysis in modeling human plasma HDL."

23 June. Lipid transfer mechanisms (Donald Zilversmit, chairperson): James Gaylor, "Functions of cytosolic proteins in membrane-associated metabolism of sterols"; K. W. A. Wirtz, "The isolation and characterization of phospholipid transfer proteins from rat tissues"; Donald Zilversmit, "The use of lipid transfer proteins for membrane modifications." Lipoprotein receptors (Robert Mahley, chairperson): Charles Sparks, "Hepatic clearance of lower molecular weight apo B in the rat"; Wolfgang Schneider, "Structure-function studies on the LDL receptor"; Robert Mahley, "Role of the E apoprotein in receptor-mediated lipoprotein metabolism."

24 June. Animal models of hyperlipemia (Paul Roheim, chairperson): David Bilheimer, "Lipoprotein metabolism in the WHHL rabbit"; Daniel Steinberg, "Catabolism of LDL in the aorta and other tissues of the receptor-deficient rabbit"; Lawrence Rudel, "Diet-induced hyperlipoproteinemia in African green monkeys"; Paul Roheim, "Peripheral lymph—a model of interstitial fluid lipoprotein composition." Atherosclerosis (George Rothblat, chairperson): Thomas Clarkson, "Atherosclerosis pathogenis—some unanswered questions."

21–24 June. Lipoprotein biosynthesis (Poster Session): David Williams, "Apolipoprotein synthesis in peripheral tissues"; Robert Glickman, "Intestinal apoprotein biosynthesis"; Roger Davis, "Carbohydrate induction of lipogenesis in cultured rat hepatocytes"; Trudy Forte, "Lipoprotein synthesis by rat hepatocyte monolayers"; Barbara Howard, "VLDL-TG metabolism in obese, noninsulin dependent diabetes"; John Albers, "Immunolocalization of apoproteins in human intestinal absorptive cells"; Saul Yedgar, "Properties of liver cell membrane in hepatic synthesis and secretion of VLDL"; Wolfgang Patsch, "Apoprotein synthesis and secretion in primary rat liver cell cultures: The role of insulin"; Robert Nicolosi, "HDL metabolism in non-human primates"; Lawrence Chan, "Molecular mechanisms of lipoprotein gene expression"; Godfrey Getz, "Control of apoprotein B and E biosynthesis in rat liver."

25 June. Human hyperlipemias (Paul Nestel, chairperson): Ernst Schaefer, "Apolipoprotein A-I and A-II metabolism in normal and dyslipidemic man"; Paul Nestel, "Apoprotein C metabolism in humans and its relevance to hypertriglyceridemia"; Gus Schonfeld, "Diet-induced changes in human lipoproteins."

Lysosomes

Proctor Academy

Samuel Silverstein, chairperson; Elizabeth Neufeld, vice chairperson.

The Role of Lysosomes in the Regulation of Cytoplasmic Function

28 June. The role(s) of carbohydrates in endocytosis and intracellular sorting: Chemistry and synthesis of markers and receptors (Robert Hill, chairperson): Robert Hill, "Receptor chemistry: An overview"; Jacques Baenziger, "Oligosaccharide specific recognition"; Stuart Kornfeld, "Assembly of phosphorylated oligosaccharides"; Kurt von Figura, "Processing of carbohydrates in lysosomal enzymes"; Sharon Krag, "Lysosomal enzyme structure and function in glycosylation mutants of CHO cells." Dynamics of receptor-mediated endocytosis (Gilbert Ashwell, chairperson): Ann Hubbard, "The 'where, what and when' of pre-lysosomal compartments in the asialoglycoprotein system"; Erwin Regoeczi, "Diacytosis: A new receptor-mediated subcellular pathway in the hepatocyte"; Philip Stahl, "Recognition of mannose-terminated glycoproteins by macrophages"; William Sly, "Receptor-mediated transport of lysosomal enzymes."

29 June. Structure and function(s) of the Golgi (George Palade, chairperson): George Palade, "Overview"; James Rothman, "Biochemical dissection of the Golgi"; Phyllis Novikoff, "Structure and function(s) of GERL"; Becca Fleisher, "Transport of nucleotides and nucleotide sugars into the Golgi apparatus"; Milton Schlesinger, "Fatty acid acylation of membrane proteins"; Daniel Louvard, Graham Warren, "Antibodies to the Golgi complex." Receptors that mediate ligand internalization and the role of coated vesicles (Michael Brown, chairperson): Richard Anderson, "Recycling of the low density lipoprotein receptor"; Jay Unkeless, "Structure and functional properties of Fc-receptors from mouse and man"; John Heuser, "The mechanism of clathrin coat formation in vivo"; Daniel Branton, "Assembly and binding of coated vesicle triskelions"; Ira Pastan, "Coated vesicles and the receptosome concept."

30 June. Infectious agents and toxins as probes for the endocytic pathway (Zanvil A. Cohn, chairperson): Sjur Olsnes, "Entry of polypeptide toxins into animal cells"; John Lenard, "Uncoating of vesicular stomatitis virus"; Ari Helenius, "Viral penetration"; Marcus Horwitz, "The intracellular site of replication of Legionnaires' disease bacteria"; James Williams, "Biochemical mechanisms of adaptation of rickettsia to the intraphagolysosomal milieu"; Zell McGee, "Endocytosis and transport of pathogenic bacteria across mucosal barriers by epithelial cells." Ion gradients in the maintenance of intralysosomal *p*H and in transmembrane signalling (H. R. Kaback, chairperson): H. R. Kaback, "Determination of electrochemical hydrogen ion gradients in microscopic systems"; Helen M. Korchak, "Stimulus response coupling in the human neutrophil and membrane potential changes"; Donald Schneider, "ATP dependent acidification of isolated lysosomes"; John Reeves, "Mechanism of lysosomal acidification."

1 July. Membrane recycling and fusion (Ralph Steinman, chairperson): Ralph Steinman, "Membrane recycling"; Marilyn Farquhar, "Multiple pathways of endocytosis, exocytosis, and membrane recycling"; Daniel Lane, "Pathway and control of insulin receptor turnover"; Jeffrey Besterman, "Endocytosis and exocytosis of solute: Evidence for two compartments in series"; Harvey Pollard, "Control of membrane fusion

during exocytosis''; Alan Finkelstein, ''Role of osmosis in fusion of lipid vesicles with plamar lipid bilayer membranes.'' George Palade, special lecture.

2 July. Genetic approaches to the study of lysosomes (Elizabeth Neufeld, chairperson): Elizabeth Neufeld, ''Overview''; Joseph Goldstein, ''Mutants of the low density lipoprotein receptor system''; April Robbins, ''CHO cell mutants with pleiotropic defects in receptor-mediated endocytosis''; Elizabeth Jones, ''Mutants of proteolytic processing of yeast vacuolar enzymes''; Randy Schekman, ''Sorting of vacuolar and secretory glycoproteins in the Golgi body in yeast''; Ann Erickson, ''Proteolytic processing during the biosynthesis of lysosomal enzymes.''

Magnesium in Biochemical Processes and Medicine

Plymouth State College

Francis J. Haddy, chairperson; Shaul Massry, vice chairperson.

2 August. Renal handling of magnesium (C. Duarte, chairperson): J. H. Dirks, ''Normal renal physiology, including transport in the nephron''; J. Coburn, ''Pathophysiology''; A. Alfry, ''Disease states.'' Intestinal handling of magnesium (H. Spencer, chairperson): M. F. Tansy, ''Normal physiology''; R. Schwartz, ''Absorption in human subjects using the stable isotope ^{26}Mg''; (H. Spencer, discussant).

3 August. Cell magnesium, particularly in blood (R. J. Elin, chairperson): A. Scarpa, ''Transient Mg and Ca in single cells''; R. J. Elin, ''Mg in lymphocytes''; B. Silver, ''Cellular Mg''; M. P. Ryan, ''^{28}Mg in lymphocytes.'' Magnesium in endocrinology (C. J. Anast, chairperson): A. R. Rosenbloom, ''Effects of glucose and glucogen on Mg in diabetes mellitus''; R. K. Rude, ''Pathogenesis of the hypocalcemia of magnesium deficiency.''

4 August. Magnesium and blood vessels (F. J. Haddy, chairperson): V. Palaty, ''Mg transport in vascular smooth muscle''; B. M. Altura, ''Mg and blood vessel contractility''; J. A. Madden, ''Influence of Mg on sodium kinetics in hypertensive rats.'' Magnesium and the heart (D. Lehr, chairperson): H. A. Heggtveit, ''Mg and structure''; D. J. Hearse, ''Mg and metabolism, particularly in the ischemic state.''

5 August. Magnesium and the heart (continued) (E. B. Flink, chairperson): Y. Rayssiguier, ''Mg and lipid interrelationships in the pathogenesis of vascular diseases''; R. L. Tackett, ''Mg and digitalis''; H. Ruddel, ''Mg and exercise.'' Magnesium and nutrition (W. Wacker, chairperson); M. S. Seelig, ''Mg requirements in human nutrition.''

6 August. Magnesium, cell growth, enzymes, nervous system (R. Whang, chairperson); H. Rubin, ''Mg and cell growth''; D. Garfinkel, ''Effect of Mg on enzyme systems and metabolism''; J. G. Chutkow, ''The neurophysiologic function of Mg—an update.''

There will also be poster sessions. Send proposed poster abstracts (250 words) to: Francis J. Haddy, M.D., Ph.D., Department of Physiology, Uniformed Services University of Health Sciences, 4301 Jones Bridge Road, Bethesda, Maryland 20814.

Magnetic Resonance in Biology and Medicine

Tilton School

Ian C. P. Smith, chairperson; Philip Aisen, vice chairperson.

9 August. ESR studies of membranes and lipids (K. W. Butler, discussion leader): D. Marsh, L. H. Piette, D. D. Thomas, speakers. Radicals and spin traps (E. G. Janzen, discussion leader): R. A. Floyd, R. P. Mason, H. Rosen, speakers.

10 August. NMR of membranes (K. R. Jeffrey, discussion leader): R. A. Byrd, R. G. Griffin, speakers. Lipid-protein interaction (M. Bloom, discussion leader): J. H. Davis, F. W. Dahlquist, speakers.

11 August. Metabolic mapping (B. Chance, discussion leader): D. Shaw, S. M. Cohen, speakers. NMR imaging (P. C. Lauterbur, discussion leader): M. H. Mendonca-Dias, W. Hinshaw, L. F. Crooks, speakers.

12 August. NMR techniques (P. D. Ellis, discussion leader): G. A. Morris, S. J. Opella, O. Jardetzky, T. J. Schaafsma, G. C. Levy, speakers.

13 August. Bioinorganic applications (W. E. Blumberg, discussion leader): B. Hoffman, J. S. Hyde, B. C. Antanaitis, speakers.

Contributed posters are to be displayed throughout the conference.

Mammalian Gametogenesis and Embryogenesis

Proctor Academy

Georgiana Jagiello, chairperson; Robert P. Erickson, vice chairperson.

23 August. Embryo transfer (John D. Biggers, discussion leader): George Seidel, ''Genetic and epigenetic applications of embryo transfer''; Benjamin Brackett, ''In vitro fertilization and embryo transfer''; William Berndtson, ''Studies in equine embryo transfer''; Barry D. Bavister, ''Assessment of viability of cultured embryos by embryo transfer.'' Embryonal carcinoma as germ cells (Roger Pedersen, discussion leader): Peter W. Andrews, ''Human teratocarcinoma cell lines as tools for studying human early embryogenesis''; Gail Martin, ''Pluripotent cells from normal and mutant embryos''; Michael Sherman, ''A model for retinoid-induced differentiation of embryonal carcinoma cells.''

24 August. Introduction of exogenous information into early embryos (Michael Sherman, discussion leader): Rudolph Jaenisch, ''Integration and expression of retro-viral genomes inserted into the germ line of mice''; Tom Wagner, ''The expression of cloned genes in mature animals''; Frank Costantini, ''Gene transfer into the mouse germ line''; Jon Gordon, ''Integration and stable germ line transmission of genes injected into mouse pronuclei.'' Cell-cell interaction during gametogenesis (Everett Anderson, discussion leader): Robert M. Moor, ''The effect of follicle cells on the mammalian oocyte''; Frank J. Longo, ''Effects of indomethacin on mouse preovulatory follicles''; Richard Schultz, ''Role of intercellular communication in oogenesis''; William Beers, ''Cell-cell communication and the control of ooctye maturation.''

25 August. X-chromosome and oogenesis (Georgiana Jagiello, discussion leader): Stanley Gartler, ''X-chromosome inactivation in mammalian germ cells''; Marilyn Monk, ''X-chromosome inactivation and cell differentiation in mammalian embryos''; Verne M. Chapman, ''X-chromosome expression in oocytes''; Terry G. Baker, ''The rate of oocyte depletion and of atresia in XO mice.'' Regulatory molecules of oogenesis (Terry G. Baker, discussion leader): Robert W. McGaughey, ''Intercellular signals relating to oocyte maturation in mammals''; Roy Cuthbertson, ''Fine control of calcium mobility in mouse oocyte''; Neal First, ''Mechanisms controlling maturation and fertilization of bovine oocytes''; R. Douglas Powers, ''The role of calcium in germinal vesicle breakdown in the mouse.''

26 August. Role of proteins of the mammalian testis (Emil Steinberger, discussion leader): Robert DePhilip, ''Specific cellular and secretory proteins of the seminiferous epithelium''; Anthony Bellve and Larry Feig, ''A mitogenic polypeptide of sertoli cells''; Marvin L. Meistrich, ''Chromatin structural proteins in spermatogenesis''; Michael Gris-

wold, "Synthesis, secretion, and function of testicular transferrin." Spermatogenesis in vitro (Abraham L. Kierszenbaum, discussion leader): Michael Welsh, "Sertoli cell–germ cell interaction in vitro"; Abraham L. Kierszenbaum, "Functional and structural aspects of spermatogenesis in vitro: Sertoli cell–germinal cell interaction"; Martti Parvinen, "Regulation of the cycle of the seminiferous epithelium"; Johan Anton Grootegoed, "Biochemical aspects of the supporting role of sertoli cells in spermatogenesis."

27 August. Membrane changes during spermatogenesis (Robert P. Erickson, discussion leader): Roy Hammerstedt, "Changes in ram sperm membranes associated with epididymal transit"; Clarke Millette, "Biochemical analysis of mammalian spermatogenic cell membranes"; Kathleen B. Bechtol, "Antigen expression on spermatocytes."

Mammalian Genital Tract

Brewster Academy

Alan C. Menge, chairperson; Stanley R. Glasser, vice chairperson

5 July. Male reproductive tract secretions (Henning Beier, discussion leader): Neal Musto, "Sertoli cell secretory proteins and their functions"; David Hamilton, "Synthesis of proteins and glycoproteins in the epididymis and vas deferens"; Kenneth L. Polakoski, " 'Pancreatic polypeptide hormones' in mammalian semen"; Zvi Marcus, "Immunosuppressive factors in human semen." Gametes: Antigens, enzymes and fertilization (Mildred Gorden, discussion leader): Bonnie S. Dunbar, "Characterization and role of the antigens of the zona pellucida"; Michael G. O'Rand, "Antigens of spermatozoa and their involvement in fertilization"; Lourens J. D. Zaneveld, "Acrosomal enzymes and fertilization."

6 July. Hormone receptors and functions (Stanley R. Glasser, discussion leader): K. M. J. Menon, "Receptor mediated regulation of rat luteal-cell progesterone production by gonadotropins and lipoproteins"; Charles H. Spilman, "Progesterone and estrogen receptor regulation of uterine diamine oxidase"; Caird E. Rexroad, "Modulation of steroid and adrenergic receptors in the myometrium during the estrous cycle." Female reproductive tract secretions and implantation (Fuller W. Bazer, discussion leader): Michael J. K. Harper, "Influence of prostaglandins on blastocyst implantation"; R. Michael Roberts, "Relationship between uterine secretory activity and the early stages of blastocyst elongation and attachment in the pig"; Anil Mukherjee, "The role of uteroglobin and transglutaminase in masking the antigenicity of sperm and the early embryos in the rabbit."

7 July. Female reproductive tract secretions and pregnancy (Charles Wira, discussion leader): Halle Morton, "Early pregnancy factor"; R. B. Heap, "Immunoregulatory role of steroid hormones in pregnancy"; Alan E. Beer, "Immunological analysis of the uterus as a graft site"; S. L. Yang, "Hormonal effects on antibodies in rhesus monkey oviduct secretions." Developmental biology and embryology—I (Joseph C. Daniel, Jr., discussion leader): David W. Bullock, "Uteroglobin gene structure and expression"; R. P. Erickson, "H-Y antigen and sex determination"; Anne G. Byskov, "Factors influencing sex differentiation of the gonads and reproductive tracts."

8 July. Developmental biology and embryology—II (Roger Pederson, discussion leader): Michael I. Sherman, "Control of gene expression during early embryogenesis"; Robert H. Glass, "Lysis of extracellular on matrices by mouse trophoblast"; Janet Rossant, "Cell lineages in early mammalian development." Reproductive tract development and hormone response—I (James H. Clark, discussion leader): Gerald R. Cunha, "Fetal development of reproductive tract responses"; Alvin M. Kaye, "Sequential development of estrogen responsiveness of the rat uterus"; Daniel Sheehan, "Estrogen responses in the postnatal rat uterus."

9 July. Reproductive tract development and hormone response—II (Terrell Hamilton, discussion leader): Beneta S. Katzenellenbogen, "Model systems for the study of reproductive tract development and function"; Barry Markaverich, "Interactions between different classes of estrogens, proteins and reproductive tract development"; John McLachlan, "Effect of estrogenic xenobiotics on development of the reproductive tract."

Abstracts for poster sessions should be sent to Alan C. Menge, Department of Obstetrics and Gynecology, University of Michigan Medical Center, Ann Arbor, Michigan 48109.

Medicinal Chemistry

Colby-Sawyer College

Denis M. Bailey, chairperson; Ruth R. Levine, vice chairperson.

2 August. Benzodiazepines: Central and peripheral receptor interactions (Sydney Spector, chairperson): Sydney Spector, "Introduction"; Alessandro Guidotti, "The roles of GABA and benzodiazepine"; Arnold S. Lippa, "Molecular substrates of anxiety: Clues from heterogeneity of central benzodiazepine receptors"; John F. Tallman, "Molecular mechanisms of benzodiazepine actions"; Sydney Spector, "Summary." Frontiers in B-lactam research (Christopher M. Cimarusti, chairperson): C. M. Cimarusti, "Introduction"; Stewart McCombie, "Synthesis and structure-activity relationships in penem antibiotics"; Ronald Ratcliffe, "Carbopenem antibiotics–synthesis and structure-activity relationships"; William Koster, "Azetidinone-l-phosphates—an alternative mode of monocyclic B-lactam activation."

3 August. α-Adrenergic receptors and hypertension (Walter Kobinger, chairperson); W. Kobinger, "New concepts of α-adrenoceptor subtypes in pharmacology"; Doz. L. Pichler, "α-Adrenoceptor subtypes in CNS-regulation"; Gary L. Stiles, "The mechanism of action of α-adrenergic receptors"; William A. Pettinger, "Genetically determined abnormality of renal α-adrenergic receptor regulation in hypertension." Lipid and cholesterol transport and metabolism (Donald M. Small, chairperson): D. M. Small, "Overview of lipid absorption transport and metabolism"; Alfred W. Alberts, "Specific new drugs which control cholesterol synthesis"; James Shepard, "The role of drugs in controlling uptake and excretion of cholesterol by the liver."

4 August. Anti-ulcer agents—I (Thomas LaMont, chairperson): Thomas LaMont, "Introduction"; Andre Robert, "Cytoprotection by prostaglandin"; George W. Holland, "The chemistry and gastrointestinal pharmacology of 11-deoxy-11, 16,16-trimethyl PGE_2"; Esam Z. Dajani, "Perspectives on the pharmacology of misoprostol, a synthetic PGE_1 analogue." Anti-ulcer agents—II (Thomas LaMont, chairperson): Sandor Szabo, "Therapeutic potential of dopamine and sulfhydryl-related drugs for duodenal and gastric ulcer"; Robert E. Keenan, "Competitive inhibition of the secretory and trophic effects of gastrin: Utility in the prophylaxis of peptic ulcer disease"; Andrew H. Soll, "Inhibition of parietal cell function by proglumide, a gastrin receptor inhibitor"; R. Hammer, "Pharmacology of pirenzepine, a potent antimuscarinic compound."

5 August. Quantitative structure-activity relationships in drug design (John G. Topliss, chairperson): Pieter B. Timmermans, "Application of QSAR in evaluating the mechanism of action of cardiovascular drugs"; Yvonne C. Martin,

"Application of QSAR in the development of a series of novel diuretics"; Dan Veber, "Computer modelling in the design and study of somatostatin analogs"; Peter J. Goodford, "Quantitative relationship of structure to function." General session (Irving J. Greenblatt, chairperson): Murray Weiner, " 'Of mice and men'—translation of animal data to humans."

6 August. Friday morning session is left open to present the latest in new drugs (Franz Waldeck, chairperson).

Metal-Insulator-Semiconductor Systems

Tilton School

Donald R. Young, chairperson; Howard Card, vice chairperson.

19 July. Small device effects (E. H. Nicollian, discussion leader): G. W. Taylor, "MOSFET scaling and device modeling for VLSI"; W. Fichtner, "Experimental and theoretical results of small size MOSFET's"; A. Kamgar, "Study of micron and submicron Si MOSFET's at low temperatures." Injection mechanisms (A. M. Goodman, discussion leader): T. N. Theis, J. R. Kirtley, D. J. DiMaria, C. Falcony and D. W. Dong, "Light emission from electron injection structures a new probe of oxide conduction mechanisms"; L. Faraone, "Determination of electron and hole current in the metal/tunnel–oxide/silicon structure under conditions of minority carrier injection."

20 July. 1-D and 2-D localization (A. Hartstein, discussion leader): M. J. Uren, "Are all electrons in a 2-D electron gas localized?"; R. A. Webb, "One dimensional conduction of MOSFET devices"; R. G. Wheeler, "Magnetoconductance and weak 1-D localization in Si inversion layers." Inversion layers (J. J. Quinn, discussion leader): R. J. Wagner, "High precision measurements of the quantized hall resistance in Si MOSFETs"; H. Closs, "Thermo-electric effect and thermo-magnetic effect in inversion layers."

21 July. Interface charge (F. Feigl, discussion leader): M. Fischetti, "Interface states induced by avalanche injection in MOS capacitors"; J. Maserjian, N. Zamani, "Observation of SiO_2/Si interface by tunneling through MOS structures"; R. R. Razouk, "Relationship between radiation induced and avalanche injected charge trapping." Si-SiO_2 interface (P. Balk, discussion leader): N. Johnson, "The detection and passivation of electronic defects at the silicon-silicon dioxide interface"; E. H. Nicollian, J. R. Brews, "Reduction of interface trap errors in MOS capacitance methods."

22 July. Materials characteristics (R. J. Jaccodine, discussion leader): S. K. Lai, "A review of thin film insulators"; R. Pfeffer, R. Lux, H. Berkowitz, W. A. Lanford and C. Burman, "Initial stage of water permeation in SiO_2 thin films"; P. Balk, "Effects of MOS processing on electron trapping in SiO_2." Contributed paper session. (H. Card, discussion leader).

23 July. Interface effects and injection (W. Lyons, discussion leader): E. H. Poindexter, P. J. Caplan, and G. J. Gerardi, "The Si ≡ Si_3 center at the Si/SiO_2 interface: Response to electric field, photons and ambient bases"; J. A. Shimer and W. E. Dahlke, "Interface studies of MOS tunnel diodes"; C. Falcony, D. J. DiMaria, D. W. Dong, T. N. Theis, J. R. Kirtley and J. C. Tsang, "Charge transport and trapping phenomena in off-stoichiometric SiO_2 films."

An application blank for attendance at the Gordon Research Conferences may be found on page 1309. A summary of the program is on pages 1288 and 1289.

Microbial Toxins and Pathogenicity

Plymouth State College

R. John Collier, chairperson; Barbara Iglewski, vice chairperson.

2 August. Toxin entry into host cells: Receptors and membrane interactions (S. Olsnes, session chairperson): K. Sandvig, L. Eidels, J. Donovan, A. Finkelstein, speakers. Viral pathogenesis: Entry mechanisms and membrane interactions (A. Helenius, session chairperson): A. Helenius, B. Fields, D. Wiley, S. Bhakdi, S. Carroll, speakers.

3 August. Targeting of toxins to specific tissues (L. Wofsy, session chairperson): L. Wofsy, D. Neville, I. Trowbridge, H. Herschman, speakers. Colicins as models of toxin action (J. Konisky, session chairperson): J. Konisky, W. Cramer, M. Mock, speakers.

4 August. Bacterial adhesion to mammalian cell surfaces: Genetics, molecular mechanisms (D. Savage, session chairperson): S. Normark, E. Beachey, R. Finkelstein, C. Svanberg, speakers. The genetics of virulence (N. Groman, session chairperson): N. Groman, D. Kopecko, D. Portnoy, speakers.

5 August. Clostridial neurotoxins (C. Hardegree, session chairperson): G. Bergey, W. Laird, M. Matsuda, speakers. Honorary lecture: (speaker to be announced).

6 August. Selected topics in microbial pathogenicity (B. Iglewski, session chairperson): S. Leppla, M. Horwitz, speakers.

Those wishing to participate in the poster sessions should send an abstract of his poster to: Dr. R. John Collier, Department of Microbiology, 5304 Life Science Building, University of California, Los Angeles, California 90024.

Microbiological Safety of Foods

Plymouth State College

Durwood B. Rowley, chairperson; Donald Splittstoesser, vice chairperson.

19 July. Microbial membranes: Factors affecting their normal function (M. Solberg, discussion leader): E. Kashket, "Transport into the cell"; H. F. Lodish, "Transport out of the cell"; G. M. Carman, "Membrane synthesis"; E. A. Grula, "Proton motive force in clostridia"; J. J. Iandolo, "Secretion of staphylococcal enterotoxin." Intestinal tract: Toxicity and invasiveness of food-borne pathogens (N. J. Stern, discussion leader): D. J. Evans, Jr., "Mechanisms of intestinal colonization by bacterial enteropathogens with special emphasis on *Escherichia coli* and *Yersinia enterocolitica*"; W. M. Spira, "Enterotoxigenicity of *Vibrio cholera* and colonization of the small intestine."

20 July. Bacterial entrapment and attachment on food surfaces (C. Vanderzant, discussion leader): T. A. McMeekin, "Mechanisms of microbial contamination of flesh foods"; S. Notermans, "Theory and practice of bacterial attachment in food processing." Mechanism of microbial growth at limiting water activity (J. A. Troller, discussion leader): L. Witter, "How bacteria cope with reduced water activity"; A. D. Brown, "Aspects of osmoregulation in *Saccharomyces*."

21 July. Chemical transformations of lactic acid bacteria (D. Splittstoesser, discussion leader): D. L. Collins-Thompson, "The chemistry and implication of nitrite reduction by the lactic acid bacteria in meats"; F. Radler, "Lactic acid bacteria of wine and their metabolism." Electron transport in anaerobes (R. B. Tompkin, discussion leader): J. S. Chen, "Electron transport systems of anaerobic bacteria"; P. A. Gibbs, "Effect of nitrite on electron transport in *Clostridium sporogenes* and *C. botulinum*." Inactivation and inhibition of food-borne parasites (A. W. Kotula, discussion leader):

K. D. Murrell, "Strategy for preslaughter control of *Trichinella spiralis* and other parasites"; A. W. Kotula, "Post-slaughter control of *Trichinella spiralis* larvae."

22 July. Recent developments in genetics for food application (A. J. Sinskey, discussion leader): P. J. Kretschmer, "Amino acid fermentations"; L. L. McKay, "Recent developments in the genetics of group N streptococci"; T. R. Klaenhammer, "Selection and development of *Lactobacillus* strains for the food industry"; D. B. Clewell, "Conjugation in *Streptococcus faecalis*"; D. A. A. Mossel, "Campylobacteriosis: Failures, fables, facts and future possibilities."

23 July. Antibody production by hybridomas (R. B. Read, Jr., discussion leader): B. Merchant, "Principles, procedures, prospects"; N. Thompson, "Application to staphylococcal enterotoxins"; D. Archer, "Problems with monoclonal antibody production."

Chemistry and Physics of Microstructure Fabrication

Brewster Academy

Kenneth E. Bean, chairperson; R. Fabian Pease, vice chairperson.

12 July. Microstructure processing and fabrication: Evelyn Hu, "Microstructure processing"; Daniel Prober, "Microstructure processing techniques and physics studies"; Don Kendall, "Very deep and narrow grooves: Etching mechanisms and a cornucopia of applications."

13 July. Beam technology and/or lithography: John Bean, "Silicon molecular beam epitaxy"; Trevor Neill, "High voltage E-beam lithography"; Fabian Pease, "Low voltage E-beam lithography"; Chris Wilkinson, "STEM, E-beam and x-ray lithography techniques below one-tenth micron"; Dan Ehrlich, "Physics of laser photochemical processing"; (speaker to be announced), "Current items and/or work in progress."

14 July. Patterning technologies: Nat Ceglio, "Applications of microstructure fabrications in x-ray optics"; Mike Isaacson, "Sub 100A, nanostructure definition"; Bob Seliger, "Focused ion beam technologies"; King Tai, "Phenomenological model of imagery process in $Ag_2Se/GeSe$ resist system and its implications for microlithography."

15 July. Ion and x-ray lithography: Gary Taylor, "X-ray resist evolution: From wet to dry to what?" Linda Eprath, "Reactive ion etching"; Gary Garrettson, "Mask development for x-ray lithography"; Kent Watts, "Registration in x-ray lithography"; C. B. Zarowin and Alan Reinberg, "Control of etch profile in high pressure reactive ion etching."

16 July. Scaling and transport properties: Pallab Chatterjee, "Scaling of microelectronic structures"; D. K. Ferry, "Ballistic electron devices."

Diffraction Methods in Molecular Biology

Proctor Academy

Wayne A. Hendrickson and Michael G. Rossman, co-chairpersons.

26 July. Sequence-specific DNA: Protein interactions (Sung-Hou Kim, chairperson): Brian W. Matthews, "Nature of specific DNA-protein recognition from Cro protein structure"; Tom A. Steitz, "DNA-protein interaction model from CAP protein structure"; M. Lewis, C. Pabo, "DNA recognition model from structure of operator binding domain of λ repressor"; J. Rosenberg, S. H. Kim, "EcoRI restriction enzyme-DNA interaction." Synchrotron radiation (Keith O. Hodgson, chairperson): Keith O. Hodgson, "Anomalous dispersion, x-ray absorption, EXAFS and synchrotron radiation"; S. Doniach, "Small-angle anomalous x-ray scattering: Applications to acetylcholine receptor"; panel discussion: "Use of synchrotron radiation in film data collection from protein crystals"; (speaker to be announced), "Dynamic small-angle scattering studies of biological systems."

27 July. Theoretical studies of protein structure (I. D. Kuntz, chairperson): R. L. Baldwin, "Protein folding kinetics"; J. A. McCammon, "Protein dynamics"; F. Cohen, "Protein structure prediction"; C. Chothia, 'Protein structure." Biological assemblies (Donald L. D. Caspar, chairperson): Donald L. D. Caspar, "Dynamic vibrations in viruses"; Ivan Rayment, "Polyoma virus"; Michael G. Rossmann, "Alfalfa mosaic virus"; C. E. Schutt, "Actin"; James A. Lake, "Ribosomes."

28 July. Crystallographic computing methods (T. Alwyn Jones, chairperson): M. Lewis, "Restrained refinement of large structures"; T. A. Jones, "Fingertip refinement of STNV"; C. E. Schutt, "Post-refinement in the processing of film data." Membrane proteins and two-dimensional arrays (Richard Henderson, chairperson): Kevin Leonard, "Cytochrome reductase"; Wah Chui, "Electron microscopy and diffraction of thin three-dimensional crystals"; Steve Hayward, "High resolution imaging (3.7 Å) of purple membrane"; Richard Henderson, "A 3.0 Å resolution electron diffraction study of purple membrane."

29 July. Glycoproteins and polysaccarides (Robert Huber, chairperson): Struther Arnott, "Extracellular and intracellular polysaccharides"; J. Deisenhofer, "Three-dimensional structure of a glycoprotein: Human F_c-fragment"; R. J. Fletterick, "Polysaccharide-phosphorylase interaction"; J. F. G. Vliegenthart, "Structure determination by means of ^{1}H-NMR spectroscopy of carbohydrates derived from glycoproteins"; D. C. Wiley, "Influenza virus hemagglutinin: Carbohydrate structure and fusion activity." (Max Perutz, chairperson): Max Perutz, "New structures."

30 July. What can detailed structures tell us? (Tom L. Blundell, chairperson): Wayne A. Hendrickson, "Effects of restraints in refinement"; Tom L. Blundell, "H-bonding, hydrogen atom positions, water structure, anisotropic vibrations in pancreatic polypeptides"; Michael James, "Structural changes in substrate analogue complexes of serine and acid proteases"; Alex Wlodawer, "High resolution neutron diffraction"; Lyle Jensen, "Metal environments in redox proteins and their redox potentials"; Wim Hol, "Molecular dynamics and water structure."

Time and space will be available for the presentation of posters. Titles should be submitted either to the Gordon Conference office together with the application form or direct to one of the chairmen.

Molecular Electronic Spectroscopy

Brewster Academy

Robin M. Hochstrasser, chairperson; Anthony Merer, vice chairperson.

9 August. Spectra of small molecules and ions: J. K. G. Watson, "Jahn-Teller effects on rotational energy levels"; W. Demtroder (title to be announced). Ultrahigh-resolution spectroscopy: R. W. Field, "Electronic structure of ionic diatomic molecules"; W. J. Child, "Recent ultrahigh-resolution spectroscopic results."

10 August. Spectroscopy and energy transfer in condensed phases: R. W. Macfarlane, "Hole-burning and coherent transient spectroscopy of solids"; M. D. Fayer, "Electronic excited state transport in disordered systems." Spectra of small molecules, part II (speakers to be announced).

11 August. Multiphoton ionization spectroscopy: P. M. Johnson, "Multiphoton ionization studies of the vibronic

structure and dynamics of some aromatic molecules"; S. D. Colson, "Electronic spectroscopy of small molecules by optical optical double resonance multiphoton ionization spectroscopy"; D. H. Levy, "Spectroscopy and photochemistry of organic clusters"; R. E. Smalley, "Molecular and metallic clusters."

12 August. Relaxation processes in isolated systems: K. F. Freed, "Photodissociation of polyatomic molecules"; R. N. Zare, "Spectroscopy and intramolecular dynamics"; N. Bloembergen, "Interaction between electronic and high vibrational excitation in polyatomic molecules"; J. Jortner (title to be announced).

13 August. Non-linear and coherent spectroscopy: A. H. Zewail, "Phase coherence in multiple-pulse optical spectroscopy"; G. J. Small, "Non-photochemical hole-burning spectroscopy."

Ionic Channels in Muscle and Other Excitable Membranes

Tilton School

John W. Moore, chairperson; R. Tsien and E. Neher, co-vice chairpersons.

2 August. Single channel measurements by patch clamp (E. Neher, chairperson): F. Sigworth, H. Ohmori, J. Patlack, speakers. Channel gating (F. Benzanilla, chairperson): R. Keynes, H. Fernandes, L. Goldman, C. Armstrong, speakers; W. Gilly, D. Corey, M. White, discussants.

3 August. Biological channels inserted into bilayers (A. Finkelstein, chairperson): S. Goldin, R. Latorre, speakers. Modulation of voltage-gated channels (R. Tsien, chairperson): H. Reuter, P. Adams, E. R. Kandel, I. Levitan, speakers.

4 August. Calcium channels (S. Hagiwara, chairperson): R. Tsien, W. Lou Byerly, R. Zucker, D. Tillotson, Kunitaro Takahashi, speakers. Calcium movements and muscle contraction (W. Almers, chairperson): W. K. Chandler, M. Schneider, J. R. Blinks, speakers; W. Almers, E. Stefani, P. Stanfield, discussants.

5 August. Calcium regulation of potassium channels (A. Gorman, chairperson): A. Marty, R. Latorre, K. Magleby, speakers. Molecular properties, heterogeneity and interactions of Na and K channels (B. Hille, chairperson): William A. Catterall, Wolfgang F. Nonner, G. Oxford, speakers.

6 August. Acetylcholine receptor/channel (C. Stevens, chairperson): S. Heinemann, D. Anderson, R. Stroud, speakers.

Chemical and Biochemical Mechanisms in Mutagenesis

New Hampton School

Bea Singer, chairperson; John W. Drake, vice chairperson.

5 July. New reactions of old mutagens (B. Singer, chairperson). New reactions of new mutagens (S. R. Tannenbaum, chairperson). Poster session.

6 July. Nucleic acid structure and conformation (R. D. Wells and D. Grunberger, chairpersons). Fidelity in replication (L. A. Loeb, chairperson). Poster session.

7 July. In vitro mutagenesis (B. Strauss, chairperson). Mammalian repair enzymes (A. E. Pegg, chairperson). Poster session.

8 July. Inducible repair enzymes (T. Lindahl, chairperson). DNA sequence specificity (B. Glickman, chairperson).

9 July. Genomic hyperinstability (J. W. Drake, chairperson).

Poster sessions are open to all conference applicants. An abstract should be submitted to the chairperson at the time of application or acceptance.

Natural Products

New Hampton School

David E. Cane, chairperson; Pat N. Confalone, vice chairperson.

26–30 July. Richard H. Baltz, "Genetics and biochemistry of tylosin production"; Larry Blaszczak, "New reactions in the chemistry of penicillin"; Rodney Croteau, "Enzymology of monoterpene cyclizations"; Peter B. Dervan, "Molecular engineering—new probes of the DNA helix"; Pierre Deslongchamps, "Study of stereoelectronic effects in acetals leading to a new strategy in organic synthesis"; David A. Evans, "Studies in asymmetric synthesis"; Laurance D. Hall, "NMR methods for the de-novo proof of structure"; John A. Katzenellenbogen, "Chemical aspects in the design of steroid radiopharmaceuticals"; Ian D. Spenser, "Biosynthesis of vitamins B_1 and B_6"; Gilbert Stork, "Progress and problems in synthesis"; Andrea Vasella, "Recent applications of sugar oximes in synthesis"; Paul A. Wender, "New methodologies for total synthesis."

Non-Ventilatory Functions of Lung

Plymouth State College

Mary C. Williams, chairperson; Jerome S. Brody, vice-chairperson.

12 July. Secretions of the alveolus (R. J. Mason, chairperson): P. Weinhold, "Regulation of dipalmitoyl phosphatidylcholine synthesis"; B. Benson, "Appoproteins and surfactant structure and function"; R. Mason, "Secretion and electrolyte transport by isolated type II cells"; F. Possmayer, "Pool sizes of choline and its derivatives in fetal lung"; J. J. Batenburg and L. M. G. van Golde, "Surfactant synthesis in lung and in alveolar type II cells"; R. King, "Factors important in the interaction of lipids and apoprotein of pulmonary surfactant"; S. Katyal and G. Singh, "Pathobiology of pulmonary surfactant apoprotein"; L. S. Brown and W. J. Longmore, "Microtubule involvement in lung surfactant secretion"; E. D. Crandall, B. E. Goodman, and K. J. Kim, "Transport characteristics of the alveolar epithelium."

13 July. Secretion in conducting airways (T. F. Boat, chairperson): T. F. Boat, "Regulation of secretion of mucins and other macromolecules by tracheobronchial epithelium"; R. C. Boucher, "Balance of airway surface liquid: Contributions of regions and cellular elements"; J. Baseman, "Long-term hamster tracheal epithelial cell culture"; J. H. Shelhamer, "Effect of alveolar macrophage supernatants on glycoprotein secretion by bronchial epithelium"; G. Massaro, "Regulation of secretion by Clara cells"; M. J. Welsh, "Basolateral membrane transport processes in canine tracheal epithelium"; C. B. Basbaum and J. H. Widdicombe, "Effects of stimulation of active sodium transport on volume flow across and ultrastructure of dog tracheal epithelium"; C. Liedtke, "β-adrenergic responsiveness of isolated rabbit tracheal epithelial cells"; R. Wu, "Regulation of mucin-like glycoprotein synthesis in tracheal epithelial cell culture."

14 July. Secretion of the extracellular matrix (J. S. Brody, chairperson): M. Tanzer, "Secretion of connective tissue macromolecules"; J. Rosenbloom, "Synthesis and secretion of elastin"; J. Brody, "Aveolar wall basement membranes"; C. Franzblau, "Matrix-cell interactions and effect on cell secretion"; R. P. Mecham, "Influence of extracellular matrix on elastin secretion"; L. Liotta, "Laminin: Synthesis and degradation"; J. A. McDonald, "Role of fibronectin in collagen deposition and organization."

15 July. Macrophage secretions and tissue damage and remodeling (P. Henson, chairperson): P. Henson, "Mechanisms of secretion from mononuclear phagocytes"; R. B. Johnston, "Secretion of oxygen radicals by macrophages"; R. M. Senior, "Secretion of

proteases by macrophages"; R. A. Sandhaus, "Synthesis and secretion of two forms of elastase by human mononuclear phagocytes"; J. E. Gadek, "Secretion of elastase by alveolar macrophages"; W. Hsueh, "Arachidonic acid metabolites from alveolar macrophages"; R. Bonney, "Secretion of arachidonic acid metabolites by macrophages"; C. Leslie, "Secretion of growth factors for mesenchymal cells by macrophages."

16 July. D. F. Tierney, "Lung cell secretions and human pulmonary diseases"; M. C. Williams, "Cell biology of secretion."

Nuclear Chemistry

Colby-Sawyer College

Luciano G. Moretto, chairperson; David Ward, vice chairperson.

21 June. The physics of heavy-ion fusion and reseparation. Compound nucleus formation, fusion-fission (prompt fission), deep inelastic scattering. Prompt decay from the dinuclear complex? Invited speakers: Swiatecki, P. Armbruster, Heinz, H. Sann, Wilker, M. Kaplan.

22 June. Transport properties in DIC and one-body dissipation. Transfer of energy, mass, charge, angular momentum as evidenced from secondary decay. Invited speakers: Feldmeyer, W. Schroeder, Morrissey, A. Gavron, D. Hilscher.

23 June. Angular momentum in heavy ion reactions. Invited speakers: Lazzarini, R. Schmitt, Beane. Giant resonances and their role in heavy ion processes at low and high energies. Invited speakers: C. Goodman, R. Broglia, B. Berman.

24 June. Towards higher energies. Three body fragmentation. Invited speakers: A. Gobbi, Glassel, U. Lynen.

25 June. Relativistic heavy ion collisions. 4π measurements of relativistic heavy ion reactions. Sub-threshold production of K in relativistic nuclear collisions. Invited speakers: A. Poskanzer, A. Shor.

Nuclear Proteins, Chromatin Structure and Gene Regulation

Tilton School

Kensal Van Holde, chairperson; E. M. Bradbury, vice chairperson.

28 June. Nuclear proteins I—structures and modifications (V. Allfrey, chairperson). Nuclear proteins II—cell cycle and development (L. Cohen, chairperson).

29 June. Nucleosomes (G. Felsenfeld, chairperson). Nucleosome phasing (H. Zachau, chairperson).

30 June. Very lysine-rich histones and higher order structure (E. M. Bradbury, chairperson). Active chromatin (P. Chambon, chairperson).

1 July. Transcription (B. Sollner-Webb, chairperson). Replication (R. Chalkley, chairperson).

2 July. Ribonucleoprotein particles (R. Kornberg, chairperson).

There will also be a poster display, at which posters will be left in place for several days for discussion. Persons wishing to present posters should contact the chairperson.

Nuclear Structure Physics

Colby-Sawyer College

John W. Negele, chairperson; Sam M. Austin, vice chairperson.

28 June. Nuclear investigations of fundamental processes: H. Robertson, "Measurements of the neutrino mass"; W. Haeberli, "Parity non-conservation in p-p and p-α scattering"; (speaker to be announced), "Searches for neutrino oscillations." The interface of nuclear and particle physics: W. Busza, "High-energy hadron-nucleus results from Fermilab"; K. Yazaki, "The nucleon-nucleon interaction from quarks"; (speaker to be announced), "The physics of nucleus-nucleus collisions at 30 GeV/A"; (speaker to be announced), "Diffractive scattering of hadrons from nuclei."

29 June. Nuclear structure studies with nucleon scattering: J. Moss, "Polarized proton scattering"; G. E. Brown, "The relation between Gamow-Teller strength and pion scattering"; W. Bertozzi, "Electromagnetic and hadronic studies of nuclei: The common ground"; (speaker to be announced), "New collective excitations." Nuclear astrophysics: J. M. Lattimer, "The nuclear equation of state"; (speaker to be announced), "Supernova collapse and explosion"; (speaker to be announced), "Superfluidity in neutron stars."

30 June. Nuclear structure studies with pions: I. Sick, "Insight from inelastic pion scattering from helium"; R. Redwine, "Photopion reactions"; (speaker to be announced), "Excitation of giant resonances in pion charge exchange reactions." Mean free paths in nuclei: J. P. Schiffer, "The problem of mean free paths from an experimentalist's perspective"; F. Lenz, "Theoretical overview: Elastic and inelastic scattering of nucleons, electrons, and pions"; P. Schwandt, "Experimental determination of nucleon optical potentials"; R. DeVries, "Inferences from nucleus-nucleus collisions."

1 July. Semiclassical approximations in chemistry and nuclear many-body theory: H. Reinhardt, "Seimiclassical approximations in nuclear many-body theory"; S. Levit, "Insight into the interacting boson model from the classical limit"; (speaker to be announced), "Path integrals and semiclassical approximations." General interest talk.

2 July. Heavy ions: R. M. Diamond, "Giant dipole transitions at high excitation"; T. L. Khoo, "Experimental studies of high spin states"; D. K. Scott, "What can we hope to learn at 20 to 200 MeV/A?"; J. Hufner, "Fragmentation reactions and the moment distribution."

Nucleic Acids

New Hampton School

Robert Roeder and Nancy Hopkins, co-chairpersons.

14 June. In vivo transfer, expression, and regulation of isolated genes—I (Richard Axel, chairperson). In vivo transfer, expression, and regulation of isolated genes—II (Tom Maniatis, chairperson).

15 June. Chromosome structure, nucleic acid–protein interactions and transcriptional regulations in vitro—I (Harold Weintraub, chairperson). Chromosome structure, nucleic acid–protein interactions and transcriptional regulation in vitro—II (Robert Tjian, chairperson).

16 June. RNA processing (Tom Cech, chairperson). Gene structure and evolution (Argeris Efstratiatis, chairperson).

17 June. Genetic rearrangements: Biology (Nancy Kleckner, chairperson). Genetic rearrangements: Mechanisms (Howard Nash, chairperson).

18 June. DNA replication and nucleic acid enzymology (Bruce Alberts, chairperson).

Organic Geochemistry

Holderness School

Wolfgang K. Seifert, chairperson; K. A. Kvenvolden and T. H. Hoering, vice chairpersons.

23 August. Petroleum goechemistry—I (J. M. Hunt, discussion leader, D. McKenzie, co-chairperson): E. Bandurski and R. Leonard, "Some apects of time/temperature history applied to oil exploration"; J. Connan, "Petroleum geochemistry in carbonates." Petroleum geochemistry—II (B. Tissot, discussion leader, J. Winters, co-chairperson): K. de Groot, "Generation, migration and

expulsion of oil from source rocks; examples: Middle East, North Sea and Borneo."

24 August. Biological markers—I (J. R. Maxwell, discussion leader; J. M. Moldowan, co-chairperson): G. Ourisson, "Molecular fossils and microbiology"; P. Albrecht, "Origin and transformation of aromatic biomarkers in sediments and petroleum." Biological markers—II (E. W. Baker, discussion leader, E. V. Whitehead, co-chairperson): W. K. Seifert, "Scope of applicability of biomarkers to problems of migration."

25 August. Recent sediments (R. Pelet, discussion leader, R. Philp, co-chairperson): R. Gagosian, "Processes controlling the vertical transport and transformation of organic matter in the oceanic water column"; G. Eglinton, "Biotic and abiotic geochemical processes in recent sediments." Isotope geochemistry (J. M. Hayes, discussion leader, M. Schoell, co-chairperson): W. Orr, "Sulfur isotope ratios in crude oil correlations."

26 August. Migration (R. W. Jones, discussion leader, R. W. Foster, co-chairperson): B. Durand, "Mathematical simulation of hydrocarbon expulsion"; D. Leythaeuser, "Recognition of geochemical migration effects for better evaluation of the mechanisms involved." Macromolecular structure of sedimentary organic matter (T. Hoering, discussion leader, D. Welte, co-chairperson): D. Maylotte, "X-ray tomography of coal."

27 August. Microorganisms in organic geochemical processes (P. Given, discussion leader, R. Kallio, co-chairperson): R. Oremland, "Microbial generation of light hydrocarbons in an alkaline meromictic lake"; M. Estep, "Biogeochemistry of various stable isotope fractionations by microorganisms." Posters are encouraged (K. A. Kvenvolden, chairperson).

Organic Reactions and Processes

New Hampton School

Robert A. Holton, chairperson; William Brill, vice chairperson.

19 July. J. D. White, "Applications of biomimetic processes in natural product synthesis"; Frank Marsh, "New powerful and selective chlorinating agents"; Myron Rosenblum, "Transformations of organoiron complexes of synthetic and chemical interest"; John McMurry, "A topic in organic synthesis."

20 July. J. P. Marino, "New synthetic methods for natural product synthesis"; Wendell Wierenga, "Novel antitumor agents: A new approach to indoles"; S. Masamune, "Recent advances in organic synthesis." Contributed talks.

21 July. A. B. Smith, III, "Recent progress in the total synthesis of Milbemycin-β_3"; Alex Oswald, "Advances in rhodium hydroformylation"; Leo A. Paquette, "Topology in organic synthesis." Contributed talks.

22 July. P. L. Fuchs, "The Bruceantin Safari"; Yoshito Kishi, "Natural product synthesis"; Ernest Wenkert, "Novel, low-valent, nickel-assisted organic reactions."

23 July. E. Vedejs, "Synthetic studies in natural product chemistry"; S. M. Weinreb, "Imino Diels-Alder chemistry in alkaloid synthesis."

Organometallic Chemistry

Proctor Academy

I. L. Mador, chairperson; Jack Faller, vice chairperson.

16 August. James Dye, "Alkalides and electrides—salts which contain alkali metal anions or trapped electrons"; Gideon Fraenkel, "Structure and dynamics of alkyl lithium compounds"; Guido Pez, "Electron transfer and hydrogenation of arenes"; John Bercaw, "Migratory insertion reactions of early transition metal hydrides and alkyls"; John Osborn, "Olefin metathesis catalysts: Synthesis and mechanisms."

17 August. John Cooper, "Organotransition metal intermediates containing reactive single carbon ligands"; Bob Crabtree, "Alkane activation by iridium compounds"; Bill Evans, "Low-valent organo lanthanide chemistry"; Tobin Marks, "New stoichiometric and catalytic actinide organometallic chemistry"; Willy Keim, "Linear oligomerization of olefins: Technical applications of *l*-olefins and *n*-octenes"; Gerhard Erker, "Reactivity and structure of olefin zirconium complexes"; Bill Drinkard, "Hydrocyanation of olefins."

18 August. Martin Moskovits, "Metal clusters without ligands: Fluxional molecules with multiple bonding"; Rick Adams, "Clusters in catalysis: Basic steps as revealed by triosmium clusters"; Dick Shrock, "Catalytic reactions involving metal-carbon multiple bonds"; John Shapley, "Organometallic cluster chemistry and catalysis"; George Whitesides, "Soluble and surface metal alkyls"; Al Cotton, "Compounds with metal-metal and metal-carbon bonds."

19 August. Duane Dombeck, "Two-carbon products from syn gas involving homogeneous catalysis"; Don Darensbourg, "Reduction of CO_2 by metal hydrides and alkyls"; J. J. Zuckerman, "Synthesis, spectroscopic and structural properties of organotin II and IV"; Fred Brinckman, "The aqueous chemistry of biogenic organometals"; Michael Cais, "Targeting potential anti-cancer organometallic drugs and the lidex serendipity."

20 August. Ted Brown, "Formation and properties of transition metal carbonyl radicals"; Milt Orchin, "Radical reactions of hydrido cobalt and manganese carbonyls"; Jay Kochi, "Organometallic electro-chemistry."

Origin of Life

Colby-Sawyer College

John S. Lewis and Hyman Hartman, co-chairpersons.

19 July. Meteorites (J. Lewis, discussion leader): J. Wood, "Meteorites and the early solar system"; S. Chang, "Hydrothermal processes on carbonaceous chondrites; clays and organics." Early boundary conditions on the evolution of planetary atmospheres (M. McElroy, discussion leader): F. Podosek, "Isotopic evidence on early solar system processes"; R. Prinn, "Origin, structure and composition of planetary atmospheres."

20 July. Chemical evolution of atmospheres and surfaces (H. Holland, discussion leader): B. Clark, "Early geochemistry of planetary surfaces"; J. Lewis, "Disequilibrating processes on planets." Geochemistry and the origin of life (J. Edmond, discussion leader): R. Garrels, "The origin of geochemical cycles"; H. Holland, "Primitive atmosphere and hydrosphere"; H. Helgeson, "Thermodynamics of hydrothermal systems."

21 July. Geo microbiology (H. Halvorson, discussion leader): R. Wolfe, "Surface geochemistry and microbiology"; D. Ward, "Microbiology of hydrothermal systems." Micropaleontology and biological record (E. Barghoorn, discussion leader): W. Schopf, "Micropaleontology of the early Precambrian"; C. Woese, "The biological record."

22 July. Prebiotic chemistry (K. Biemann, discussion leader): S. Miller, "Prebiotic chemistry of amino acids"; L. Orgel, "Prebiotic chemistry of nucleotides"; J. Lawless, "Clays and organic interactions in prebiotic chemistry"; A. Bard, "Photoelectrochemistry and prebiotic synthesis." Replication and translation (L. Orgel, discussion leader): N. Pace, "Comparative molecular biology of translation"; J. Hopfield, "Experiments in amino acid–nucleic acid inter-

actions"; H. Hartman, "Speculations in the origin and evolution of the genetic code"; A. Weiss, "Experiments in the replication of clay particles."

23 July. New pathways (H. Hartman, discussion leader): A. Cairn-Smith, "Clays and the origin of life"; J. Corliss, "Hydrothermal origin of life"; H. Hartman, "Autotrophy versus heterotrophy."

Oscillations and Dynamic Instabilities in Chemical Systems

Plymouth State College

Irving R. Epstein, chairperson; Richard M. Noyes, vice chairperson.

26 July. Oscillations in homogenous liquid solutions (Kenneth Kustin, chairperson): Patrick De Kepper, Richard J. Field, speakers. Heterogeneous and gas phase phenomena (Roger Schmitz, chairperson): Peter Gray, Lanny Schmidt, Joel Keizer, speakers.

27 July. Multiple stable states (Kedma Bar-Eli, chairperson): Miklós Orban, Dan Luss, Milos Marek, speakers. Aperiodic phenomena (Richard Noyes, chairperson): Mitchell Feigenbaum, Harry Swinney, Jean-Claude Rox, Jack Hudson, speakers.

28 July. Biological oscillators (John Tyson, chairperson): Paul Rapp, Art Winfree, Albert Goldbeter, speakers. "Brief glimpses at recent developments" (Adolphe Pacault, chairperson). The "Brief Glimpses" session will consist of short (5 to 10 minute) presentations of the most recent work in the field. Suggestions for contributions should be sent to Professor I. Epstein, Department of Chemistry, Brandeis University, Waltham, Massachusetts 02254. If there is sufficient interest, poster sessions will be scheduled as well.

29 July. Mathematical description (John Rinzel, chairperson): Harmon Ray, David Edelson, John Rinzel, speakers. Spatial and nucleation phenomena (I. R. Epstein, chairperson): Peter Ortoleva, Kenneth Showalter, John Ross, speakers.

30 July. Treatment of complex systems (John Ross, chairperson): Peter Richter, Martin Feinberg, speakers. Summary and concluding remarks: Gregoire Nicolis.

Particle-Solid Interactions

Holderness School

Wei-Kan Chu, chairperson; S. T. Picraux, vice chairperson.

19 July. Surface studies by ion scattering (L. C. Feldman, discussion leader): H. D. Hagstrom, "Surface electron spectroscopies based on the interaction of slowly moving atoms that carry potential energy"; T. E. Jackman, "Platinum surface studies using MeV ion beam." Interface structures (L. Esaki, discussion leader): A. C. Gossard, "Semiconductor heterointerfaces grown by molecular beam epitaxy."

20 July. Positron-solid interactions (A. N. Goland, discussion leader): A. P. Mills, Jr., "Production and applications of slow positron beams"; K. G. Lynn, "Slow positron studies of near-surface defects"; R. N. West, "2-D angular correlation studies of perfect and imperfect metals and alloys"; S. Berko, "Momentum density and Fermi surface studies on metals and alloys by 2-D ACAR." Electron emission (C. R. Vane, discussion leader): E. P. Kantor, "The contributions of field-ionized Rydberg atoms in measurements of convoy electrons"; Y. Yamazaki, "The Vicinage effect in inner shell vacancy production."

21 July. Desorption and sputtering (P. Sigmund, discussion leader): T. A. Tombrello, "Enhanced sputtering and track production in dielectric solids"; T. E. Madey, "Angular resolved electron and photon stimulated desorption of ions from surfaces." Origin of ions and excited states in the sputtering process (R. Kelly, discussion leader): N. H. Tolk, "Excitation in electronics sputtering"; M. L. Yu, "Formation of atomic and molecular ions in sputtering"; B. J. Garrison, "Theory on ionization for particle desorption"; E. Veje, "Formation of excited states in sputtering and in beam foil spectroscopy"; J. K. Norskov, "Theory on formation of excited states in sputtering."

22 July. Ion beam mixing (S. T. Picraux, discussion leader): P. Sigmund, "Recoil effects in ion beam mixing"; U. Littmark, "Cascade effects in ion beam mixing"; H. Wiedersich, "Role of thermally activated processes in mixing"; J. Mayer, "Influence of phase formation." Stopping power and charge states (R. H. Ritchie, discussion leader): W. Brandt, "Modern problems of low-velocity stopping powers"; L. Toburen, "Charge-state dependence of ion induced electron emission."

23 July. Channeling radiation (R. H. Pantell, discussion leader): J. U. Andersen, "Theoretical aspects of channeling radiation"; N. Cue, "Some experimental results on channeling radiation"; R. Swent, "Future direction for channeling radiation."

Photoconductivity and Related Phenomena

New Hampton School

Charles Braun and Ronald Chance, co-chairpersons; Martin Abkowitz and Mark Wrighton, co-vice chairpersons.

21 June. (A. Rose, discussion leader): T. I. Chappell, "Photovoltaics: Progress and prospects"; M. H. Brodsky, "Hydrogenated amorphous silicon as a prototypical disordered semiconductor." (M. A. Abkowitz, discussion leader): V. Vardeny, "Time resolved photoinduced absorption in doped and undoped amorphous silicon"; E. Maruyama, "Image-device applications of amorphous photoconductors."

22 June. (M. Silver, discussion leader): R. C. Hughes, "Space charge and the metal-insulator interface in photoconductivity"; G. Weiser, "Electro-reflectance measurements of charge-transfer transitions." (M. Pope, discussion leader): F. Willig, "Photogeneration of charge carriers at the surface of insulators and semiconductors"; F. Kaufman, "Electronic interactions and applications of pi-donor intercalate polymers."

23 June. (F. Williams, discussion leader): G. Kenney-Wallace, "Picosecond lasers and dynamics of electron transfer and transport"; C. B. Duke, "Photoemission and electron transfer in molecularly doped and pendant group polymers." (R. R. Chance, discussion leader): T. J. Marks, "Rational design of 'metal-like' molecular/macromolecular assemblies"; A. C. Tam, "Photoacoustic monitoring of photoconductivity and other energy-conversion processes."

24 June. (M. S. Wrighton, discussion leader): A. Heller, "Polycrystalline and hydrogen generating solar cells"; L. R. Faulkner, "Exciton collection and electron transfer at tailored reaction centers"; R. Gundlach, "Inside xerography, 1938–82."

25 June. (C. L. Braun, discussion leader): J. Spoonhower, "10-GHz photodielectric effect in AgCl: Studies of the onset of the drift mobility regime"; D. M. Pai, "Organic photoconductors in electrophotography." Short talks by H. Bässler, R. Enck, Z. Popovic, and H. Scher.

Send abstracts for contributed papers to Dr. R. R. Chance, Corporate Research/MRC, Allied Corporation, P.O. Box 1021R, Morristown, New Jersey 07960. Additional short talks will be scheduled and a poster session may be held depending on the number of abstracts received.

Photonuclear Reactions

Colby-Sawyer College

John W. Lightbody, Jr., chairperson; W. Donnelly, vice chairperson.

9 August. C. de Jager, "Recent developments in high energy electron scattering"; (speaker to be announced), "Quasi-elastic electron scattering, sum rules, and properties of nucleons in the nuclear medium"; (speaker to be announced), "QCD and intermediate energy nuclear physics—recent development"; J. M. Laget, "Nuclear structure research with real and virtual photons in the delta region."

10 August. A. Sandorfi, "Radiative capture through giant resonances built on highly excited states"; D. Halderson, "Nucleon capture and complementary reactions"; B. Goulard, "Meson exchange currents and electromagnetic form factors of ^{3}H and ^{3}He"; H. T. Williams, "Photon scattering from few nuclear systems in the delta resonance region"; B. Mecking, "Photonuclear research at Bonn."

11 August. S. Müller, "Fine structure in magnetic and electric giant resonance excitations studied by low-q electron scattering"; S. Krewald, "The role of delta degrees of freedom in low energy magnetic excitations"; (speaker to be announced), "Recent developments in low energy photo reactions and the few nucleon problem"; K. van Bibber, "Coincidence electron scattering and giant multipole resonances in ^{238}U."

12 August. B. Berman, "Electromagnetic dissociation of relativistic heavy ions"; C. Goodman, "Spin-isospin giant resonances excited by the (p,n) reaction"; B. Schoch, "Photonuclear research at Mainz"; J. H. Koch, "Delta resonance effects in nuclei."

13 August. (Speaker and subject to be announced). Summary speaker: W. Turchinetz.

Physical Metallurgy

Proctor Academy

David N. Seidman, chairperson; Neil Paton, vice chairperson.

Solute Atom Segregation Effects

12 July. Surface solute segregation effects: P. Wynblatt, "Equilibrium composition of alloy surfaces"; (M. P. Seah, discussion leader). T. M. Buck, "Use of low-energy-ion scattering for the study of surface solute segregation or ordering"; (J. R. Chelikowsky, discussion leader). T.-T. Tsong, "Surface segregation studies via the atom-probe field-ion microscope"; (G. D. W. Smith, discussion leader). J. M. Blakely, "Phase transitions in segregated layers"; (J. Oudar, discussion leader).

13 July. Solute segregation effects at internal interfaces (R. W. Balluffi, chairperson): V. Vitek, "Atomic structure of grain boundaries and its relationship to segregation"; (J. K. Lee, discussion leader). H. J. Grabke, "Solute segregation to grain boundaries in iron-base alloys"; (C. J. McMahon, Jr., discussion leader). K. N. Tu, "Silicide formation and segregation at metal-silicon interfaces." Solute segregation effects in nonmetallics (A. H. Heuer, chairperson): J. Thibault-Desseaux, "High resolution transmission electron microscope studies of segregation of oxygen to dislocations in silicon"; (J. R. Patel, discussion leader). L. M. Slifkin, "Segregation of aliovalent solutes and point defects in the subsurface region of silver halide crystals"; (R. M. Cannon, discussion leader).

14 July. Solute atom interactions with defects (J. W. Cahn, chairperson): A. M. Stoneham, "Point defect interactions in the solid state"; (C. P. Flynn, discussion leader). R. P. Messmer, "Electronic effects of segregants at grain boundaries"; (R. Taylor, discussion leader). Point defect-solute atom interactions (A. Barbu, chairperson): H. Wollenberger, "Mobile and immobile solute-interstitial complexes"; (A. V. Granato, discussion leader). N. Lam, "The molecular dynamics of self-interstitial solute-atom interactions in dilute alloys"; (K. H. Robruck, discussion leader).

15 July. Nonequilibrium solute segregation effects (H. Wiedersich, chairperson): P. Okamoto, "Particle radiation induced segregation effects"; (A. Marwick, discussion leader): G. Martin, "Nonequilibrium segregation: A general phenomenon"; (R. A. Johnson, discussion leader). R. F. Wood, "Nonequilibrium segregation in semiconductors as a result of intense laser irradiation"; (D. Turnbull, discussion leader).

16 July. High resolution techniques for the study of solute atom segregation effects (P. B. Hirsch, chairperson): S. S. Brenner, "Atom-probe field ion microscopy for the study of solute atom segregation effects at interfaces"; (H. W. Pickering, discussion leader). R. W. Carpenter, "High-resolution analytical microscopy: Spatial resolution and detection limits"; (J. Bentley, discussion leader). F. L. Vook, "Ion beams as probes of solute segregation effects"; (R. S. Averback, discussion leader).

Physical Organic Chemistry

Brewster Academy

Martin Saunders, chairperson; Tadamichi Fukunaga, vice chairperson.

14–18 June. The following people will speak: F. A. L. Anet, Stephen J. Benkovic, Jerome A. Berson, Charles P. Casey, Robert M. Coates, J. D. Dunitz, Gary W. Griffin, Warran J. Hehre, E. Heilbronner, William L. Jorgensen, W. Kirmse, William J. Le Noble, Richard Merrifield, Josef Michl, David A. Pensak, Peter Rentzepis, V. J. Shiner, Jr., and Rangasway Srinivasan.

Plant Molecular Biology

Plymouth State College

Mary Dell Chilton, chairperson; Brian Larkins, vice chairperson.

21 June. Plant protection and plant wound response (Joe Varner, chairperson): Joe Varner, "Hydroxyproline-rich glycoprotein synthesis in wounded plant tissues"; Clarence Ryan, "Regulation, synthesis and compartmentation of protease inhibitor after wounding"; Chris Lamb, "Early molecular events in the phytoalexin defense response"; Gary Strobel, "Bacterial antagonists as plant protectants." Molecular systems that are genetically accessible in plants (Michael Freeling, chairperson): Michael Freeling, "Regulatory mutations caused by insertions at the ADH I gene in maize"; Pal Maliga, "Biochemically defined mutants in plant cell culture systems"; W. James Peacock, "Molecular biology of anaerobic genes in maize."

22 June. Chloroplasts (Nam-Hai Chua, chairperson): Nam-Hai Chua, "Regulation of nuclear genes encoding chloroplast proteins"; Lawrence Bogorad, "Structure of maize chloroplast genes"; Reinhold Herrmann, "Functions of chloroplast DNA of spinach and *Oenothera*"; Richard Hallick, "Organization of choloroplast genes in *Euglena*." Mitochondria (Ron Sederoff, chairperson): Ron Sederoff, "Structure, organization and evolution of the mitochondrial genome"; Chris Leaver, "Mitochondrial genes and their expression"; David Lonsdale, "Physical map of the maize mitochondrial genome."

23 June. Crown gall and hairy root (Eugene W. Nester, chairperson): Eugene W. Nester, "Molecular studies on crown gall"; Rob Schilperoort, "Molecular and comparative studies of *Agrobacterium tumefaciens* and *A. rhizogenes*"; Jeff Schell, "Ti plasmid genes." Symbiotic nitrogen fixation (Fred Ausu-

bel, chairperson): Fred Ausubel, "Molecular genetics of *Rhizobium meliloti* symbiotic genes"; Jean Dénarié, "Role of *R. meliloti* megaplasmids in symbiosis"; Adam Kondorosi, "Clustering of symbiotic genes."

24 June. Expression of nuclear genes—I (Robert Goldberg, chairperson): Robert Goldberg, "Organization of storage protein genes in soybean"; Desh Pal Verma, "Leghaemoglobin genes of soybean"; Roger Beachy, "Structure and expression of soybean 7*S* storage protein genes"; Joe Key, "Heat shock response in plants." Expression of nuclear genes—II (Brian Larkins, chairperson): Brian Larkins, "Zein genes of maize"; Peter Starlinger, "Sucrose synthetase genes in maize"; John Sorenson, "Catalase gene expression in maize scutellum."

25 June. Plant gene promoters and chimeric genes (Steve Howell, chairperson): Steve Howell, "Promoters in the CaMV genome"; Leonard Guarente, "Chimeric genes exploiting yeast promoters"; Rich Meagher, "DNA sequence analysis of non-coding regions of plant genes."

Plasma Chemistry

Tilton School

Paul C. Lindsey, Jr., chairperson; R. Hess, R. M. Varnes, D. M. Benenson and D. L. Flamm, co-vice chairpersons.

16 August. Elementary processes (Lorne Chanin, discussion leader): L. G. Christophorou, "Electron-molecule interactions"; discussion talks. Plasma synthesis (Harald Suhr and Jacques Amouroux, discussion leaders): U. Kogelschatz, "Ozone synthesis in gas discharges"; Neil B. Henis, "The application of plasma chemistry to the production of industrially useful monomers"; discussion talks.

17 August. Diagnostics (Werner Lindinger and Terry A. Miller, discussion leaders): Heinz Sabadil, "Experimental methods of studying microscopic and macroscopic plasma parameters in electronegative low pressure D. C. and H. F. discharges"; Jacques P. M. Schmitt, "Active and passive spectroscopy and other diagnostics: A close look at the primary processes in molecular plasmas"; discussion talks. Polymerization and deposition (Benjamin Abeles and H. Yasuda, discussion leaders): Joe E. Greene, "Ions and plasma—surface interactions during film growth: Kinetics and chemistry"; Jim Harper, "Film deposition under controlled ion bombardment"; discussion talks.

18 August. Etching I (John Coburn, discussion leader): Donald L. Smith, "Real-time surface and desorption analysis of plasma etching mechanisms"; Vincent Donnelly, "Mechanisms in plasmas and plasma etching"; discussion talks. Etching II (Geraldine C. Schwartz and David N. K. Wang, discussion leaders): Yasuhiro Horiike, "Recent advances in high rate anisotropic etching"; discussion talks.

19 August. Thermal applications (William H. Gauvin, discussion leader): Pierre Fauchais, "No synthesis in D.C. arc plasma (at atmospheric pressure) modelling and in situ measurements"; Ward C. Roman, "Strategic materials reclamation"; discussion talks. Modelling (Joseph Taillet, discussion leader): Allen Garscadden, "Modelling of non-equilibrium plasmas"; Maher T. Boulos, "Plasma modelling: Potential and limitations."

20 August. Plasma emission sources and plasma developable resists (Minoru Tsuda, discussion leader): John F. Waymouth, "Plasma chemistry effects in discharge light source"; Gary N. Taylor, "Dry-developed resist materials and processes: Present status and future hope"; discussion talks.

Discussion talks. These papers may treat unsolved problems as well as recently completed research which might benefit from extensive discussion. Since all material at Gordon Research Conferences is "off the record" and will not be recorded or published, unfinished work and preliminary results can be freely presented and discussed; 10 to 15 minutes will be allotted for each talk with a 5- to 20-minute discussion to follow. The discussion talks have intentionally been left open and contributions are now being solicited. If you would like to contribute a discussion paper, please send title and abstract to: P. C. Lindsey, Zylin Corporation, 8133 Capwell Drive, Oakland, California 94621.

It is requested that abstracts be submitted as early as possible so that the committee can give each paper proper consideration. Manuscripts will be formally accepted in May 1982 and the final program will be available in June 1982.

Polymer Physics

Proctor Academy

J. D. Ferry and W. H. Stockmayer, co-chairpersons; E. A. DiMarzio, vice chairperson.

19 July. (W. W. Graessley, discussion leader): R. B. Bird, "Molecular theory expressions for the stress tensor in flowing polymeric liquids"; M. Doi, "Molecular motion and rheology in concentrated polymer solutions." (J. L. Schrag, discussion leader): J. Meissner, "Recent and future new experiments in polymer melt rheology with importance for both theory and characterization"; L. G. Leal, "Birefringence studies of polymer solutions in elongational flow."

20 July. Poster session. (H. Yamakawa, discussion leader): M. Kurata, "Some molecular aspects of polymer rheology"; H. Sillescu, "NMR evidence of segmental jump motions in bulk polymers."

21 July. (C. S. P. Sung, discussion leader): A. R. Berens, "Effects of history variations on glassy state relaxations"; J. Skolnick, "An order-disorder theory of stress-strain behavior of glassy polymers: Quasi-equilibrium and dynamic effects." (A. Z. Akcasu, discussion leader): W. Burchard, "Possibilities and future aspects of combined dynamic and static light scattering"; M. Fixman, "Polymer transport coefficients from equilibrium and dynamical simulation."

22 July. (E. A. DiMarzio, discussion leader): R. H. Boyd, "Modelling energetics in polar crystalline polymers"; J. Klein, "Modification of surface interactions by adsorbed polymers: Experiment and theory." (N. W. Tschoegl, discussion leader): A. Peterlin, "The history of polymer physics as a discipline."

23 July. (J. D. Ferry and W. H. Stockmayer, discussion leaders): G. Weill, "Magnetic birefringence and polyelectrolyte conformation"; M. Muthukumar, "Screening concepts and extrapolation formulas for polymer solution properties."

Polymers

Colby-Sawyer College

Burton C. Anderson, chairperson; Eli Pearce, vice chairperson.

5 July. Anisotropic polymer systems (James Economy, discussion leader): Helmut Ringsdorf, "Anisotropic polymer systems"; Robert W. Lenz, "Synthesis of polyesters which form anisotropic melts." Poster session (Eli M. Pearce, discussion leader). (Morton Litt, discussion leader): Guy Berry, "Physical studies of anisotropic systems"; Ted Atkins, "Structure of poly (*p*-phenylene-benz-*bis*-thiazole) and orientation behavior in elongational flow fields of rigid-rod type polymers."

6 July. Multiphase polymer systems (Lloyd Taylor, discussion leader): Phillippe Teyssie, "Molecular control of polymer blend properties: A new tool in

macromolecular science"; Geoffrey C. Eastmond, "Synthesis and characterization of block and graft copolymers." (Fred Bailey, discussion leader): Dale J. Meier, "Physics of multiphase systems"; Isaac C. Sanchez, "Thermodynamic properties of polymer blends."

7 July. Mechanisms of polymerization processes (Joseph C. Salamone, discussion leader): Henry K. Hall, "Bond-forming initiation in polymerization and addition reactions"; Kenneth O'Driscoll, "Copolymerization kinetics at low and high conversion"; C. Grant Willson, "Depolymerizable systems for resist applications." (Joseph P. Kennedy, discussion leader): Peter J. T. Tait, "Recent studies of catalyst activity in Ziegler-Natta polymerization"; Nicolas Spassky, "Stereochemical aspects of the polymerization of epoxides"; Gunther Heublein, "Selective polymerization from pyrolysis fractions."

8 July. (David A. Tirrell, discussion leader): Takeo Saegusa, "New developments in 'no-catalyst copolymerization via Zwitterion intermediates' "; Frank J. Williams, III, "Synthesis of new aromatic polyformals." (Field H. Winslow, discussion leader). George Whiteside, "Organic polymer surface chemistry."

9 July. (Otto Vogl, discussion leader): Gerald D. Andrews, "Anionic polymerization of methacrylate esters"; Toshinobu Higashimura, "Recent studies in cationic oligomerization and propagating species"; William T. Winter, "Conformational studies on bacterial polysaccharides."

Postharvest Physiology

Kimball Union Academy

Roger J. Romani, chairperson; Alley E. Watada, vice chairperson.

16 August. Ethylene biosynthesis, mechanisms of action, self-inhibition (Shang-fa Yang, chairperson). Stress factors and their control in Ca storage (low O_2, low temperature injury, gas permeation, scrubbing) (David Dilley, chairperson).

17 August. Respiratory and metabolic phenomena that underlie postharvest changes (CO_2 effects, metabolic controls, stress metabolism (chairperson to be announced). Ions and the course of fruit ripening (Ca effects and site of action, ion relations, phosphorus and ripening) (Steven Wallner, chairperson).

18 August. Molecular and membrane phenomena that underlie postharvest changes (membrane dynamics, messenger RNA, polysomal states) (George Laties, chairperson). Quality factors and flavor development in ripening tissues (Alley Watada, chairperson).

19 August. Postharvest pathology and disease resistance (mechanisms of resistance, critical metabolic changes, ethylene and pathogen resistance) (Noel Sommer, chairperson). Postharvest physiology and reality (funding postharvest research, postharvest as pre-processing, energy conservation, postharvest technology in developing countries) (James Palmer, chairperson).

20 August. Updates, speculations, futurisms (tissue culture, cell senescence, light and ripening, and so forth). (William Bramlage, chairperson).

Poster session I: Concepts and progress in postharvest physiology and biochemistry. Poster session II: Developments in postharvest technology.

Note: Those wishing to present a poster should submit a brief abstract along with their application to the Gordon Conferences Office. The abstract should include: authors, institution, title and brief discussion not to exceed one-half typewritten page in all.

Proteolytic Enzymes and Their Inhibitors

Plymouth State College

Michael Laskowski, Jr., chairperson; Aaron Janoff, vice chairperson.

28 June. Three-dimensional structures of enzymes (H. Neurath, chairperson): H. Neurath, "Serine proteinases—an overview"; R. Huber, "Activation, action and inhibition of trypsin: New results"; A. A. Kossiakoff, "Neutron diffraction of trypsin"; W. N. Lipscomb, "Carboxypeptidase A–potato inhibitor complex." Mechanism of action (J. S. Fruton, chairperson): J. L. Markley, "NMR of serine proteinases and their inhibitors"; B. Tonomura, "Mechanism of SSI-subtilisin interaction"; B. L. Vallee, "Mechanism of carboxypeptidase A."

29 June. Newer proteinases (S. Magusson, chairperson): R. Zwilling, "Astacus protease: A new family of proteolytic enzymes"; C. H. W. Hirs, "Pancreatopeptidase E"; H. Tschesche, "Human leukocyte collagenase and regulation of activity"; K. A. Walsh, "Signal peptidase(s)." Proteinase inhibitor (F. E. Feeney, chairperson): T. Ikenaka, "Inhibitors from legumes"; C. A. Ryan, "Plant inhibitors—biosynthesis and function"; S. Magnusson, "α_2 Macroglobulin."

30 June. Proteinase inhibitor: Three-dimensional structures (J. Kraut, chairperson): W. Bode, "The structures of free kallikrein and its complex with BPTI"; Y. Mitsui, "SSI-subtilisin complex"; M. N. G. James, "*Streptomyces griseus* proteinase B–turkey ovomucoid third domain complex." What enzymes act on (E. N. Shaw, chairperson): E. N. Shaw, "Affinity labeling of thiol proteinases"; J. C. Powers, "Subsite mapping of serine proteinases"; M. Laskowski, Jr., "Sequence → reactivity algorithm for inhibitors."

1 July. Proteolytic cascades (E. W. Davie, chairperson): E. W. Davie, "Blood clotting cascade (review)"; T. Inagami, "Angiotensin cascade"; H. Fritz, "Kinin cascade"; G. L. Long and S. L. C. Woo, "The α_1 proteinase inhibitor gene." Oxidant modulation of proteinase antiproteinase interaction (A. B. Cohen, chairperson): J. Travis, "Oxidation of α_1-proteinase inhibitor"; A. Janoff, "Lung protease-antiprotease balance in smokers"; C. G. Cochrane, "Oxidants and proteases in adult respiratory distress syndrome"; W. Troll, "Generation of oxidants by tumor promoters"; J. M. McCord, "Activation of oxidases by limited proteolysis."

2 July. Proteinases and the cancer cell (W. Troll, chairperson): J. Quigley, "Virus-induced proteases in cell transformation"; A. Kennedy, "Inhibition of x-ray transformation by antiproteases"; L. Ossowski, "Plasminogen activator in metastases"; L. Liotta, "Role of collagenase in tumor invasion"; Y. Birk. "Legume proteinase inhibitors as dietary anticarcinogens."

All participants are encouraged to present posters (one per participant) on any aspect of proteolytic enzymes and their inhibitors. If you intend to present such a poster, please supply the title, the names of authors, and a brief abstract along with the application for attendance.

Pyrroles

Brewster Academy

Gerald S. Marks, chairperson; Kevin M. Smith, vice chairperson.

2 August. Chlorophylls (Kevin M. Smith, chairperson): Kevin M. Smith, "Bacteriochlorophylls"; Michael Wasielewski, "Chlorophyll structure and photosynthesis"; Constantin A. Rebeiz, "Novel chlorophylls and their precursors." Porphyrins in human disease (J. Kushner, chairperson): S. Melnik, "Porphyrins as anti-parasitic agents"; D. Kessel, "Porphyrins and cancer"; D. Avner, "Hepatic disposition of protoporphyrin."

3 August. Formation of *N*-alkylporphyrins (T. Tephly, chairperson): P. Or-

tiz de Montellano, "Formation of *N*-alkylporphyrins"; F. De Matteis, "*N*-alkylporphyrins"; D. Mansuy, "Chemistry of *N*-alkylporphyrins." Effects of haloaromatic hydrocarbons on the heme biosynthetic pathway (G. Elder, chairperson): S. Sano, "Mechanism of porphyrin induction with special reference to the inhibition of uroporphyrinogen decarboxylase by polychlorinated biphenyls"; G. Sweeney, "2,3,7,8-Tetrachlorodibenzo(*p*)dioxin (TCDD)-induced porphyria"; P. Sinclair, "Polybrominated biphenyl-induced porphyria."

4 August. Enzymes of the heme biosynthetic pathway (D. Bishop, chairperson): B. Grandchamp, "Coproporphyrinogen oxydase: Enzymology and relationship to coproporphyria"; G. Kikuchi, "ALA synthetase: Heme and its interaction with ALA synthetase in transport to mitochondria"; B. May, "Control of ALA synthetase and the enzymology of ALA synthetase." Cytochrome P-450 (U. Meyer, chairperson): A. Rifkind, "Functional heterogeneity of mixed function oxydases"; D. Nebert, "Genetic heterogeneity of cytochrome P-450."

5 August. Advances in human porphyrias (H. Bonkowsky, chairperson): S. Sassa, "Erythrocyte PBG deaminase in clinically manifest and clinically latent AIP subjects"; R. Desnick, "Biosynthetic and genetic studies of heme biosynthetic enzymes"; J. Bloomer, "Terminal enzymes of the heme biosynthetic pathway in the porphyrias." Porphyrin chemistry (W. S. Caughey, chairperson): H. J. Callot, "Metalloporphyrin-carbene interactions: Intra- and intermolecular alkyl and carbene transfer"; R. Bonnett, "Metalloporphyrins in coal"; A. H. Jackson, "Some reactions of protoporphyrin."

6 August. Heme breakdown (T. McDonagh, chairperson): B. Frydman, "Biliverdin reductase"; T. Yoshida, "Microsomal heme oxygenase"; J. Clark-Lagarias, "Protein-bilin interactions: Coupled oxidation of cytochrome c."

Poster sessions—in charge: Kevin M. Smith, Department of Chemistry, University of California, Davis, California 95616. Monday, 2 to 3 p.m., mounting of posters; Monday through Thursday, 3 to 5 p.m., poster sessions; participants are requested to be available for discussion.

Quantum Solids and Fluids

Plymouth State College

S. Doniach and R. B. Hallock, cochairpersons.

Non-Linear Instability Phenomena and Superfluidity

19–23 July. Topics: Hydrodynamic instabilities; convective instabilities; chaotic behavior; superfluid turbulence; non-linear third sound; 2D superfluidity; modes and instabilities in Josephson junctions; instabilities in granular superconductor; Josephson junction lattices; quantum noise; spin polarized systems (hydrogen and helium-3); the dilute helium-4 bose gas; sound modes in helium-3; specific heat; dissipation in helium-3; helium-3 relaxation effects; melting modes in helium-4 and the Kapitza problem.

The speakers will include: V. Ambegaoker, J. Berlinski, Castaing, J. Clarke, R. Cline, T. Greytak, D. Gubser, B. Huberman, J. Ketterson, A. Leggett, J. Maps, N. D. Mermin, J. Mochel, P. Nozieres, D. Osheroff, J. Reppy, R. Richardson, K. Schwartz, J. Serene, I. Silvera, H. Swinney, and R. Webb.

Radiation Chemistry

Brewster Academy

Gordon Freeman, chairperson; Richard Fessenden, vice chairperson.

28 June. (J. L. Magee, discussion leader): Andries Hummel, "Diffusion models of nonhomogeneous kinetics of reactions in the radiolysis of liquids." (B. S. Yakovlev, discussion leader): Alexander D. Trifunac, "Radical ion kinetics in hydrocarbons: Optically detected, time-resolved EPR." (L. Kevan, discussion leader): George H. Atkinson, "Time resolved resonance Raman spectroscopy of short-lived, liquid phase reaction intermediates."

29 June. (J. H. Fendler, discussion leader): Szabolcs Vass, "Stochastic model of nonhomogeneous kinetics of reactions in microaggregate systems." (L. Patterson, discussion leader): Michael Gratzel, "Dynamics of light-induced electron and energy transfer processes in colloidal semiconductors, metals and surfactant assemblies." (G. L. Closs, discussion leader): Arnim Henglein, "Reactions of free radicals on metal colloids in aqueous solution."

30 June. (C. L. Braun, discussion leader): Jaan Noolandi, "Stochastic models of charge transport and diffusion-controlled reactions in amorphous materials." (K. Funabashi, discussion leader): Theodore Moustakes, "Charge transport in and properties of amorphous semiconductors." (J. C. Thompson, discussion leader): Friedrich Hensel, "Correlation of electronic transport and optical properties of simple fluids at high temperatures and pressures."

1 July. (Y. Hatano, discussion leader): Earl W. McDaniel, "Mobilities and diffusion coefficients of ions in gases, I: Experiment." (P. Kleban, discussion leader): Larry A. Viehland, "Mobilities and diffusion coefficients of ions in gases, II: Theory." Poster session (R. W. Fessenden, discussion leader).

2 July. (N. V. Klassen, discussion leader): H. Ted Davis, "Electron transport in gases and gas mixtures." (C. D. Jonah, discussion leader): John M. Warman, "Electron thermalization in dielectric solids, liquids and gases."

Radical Ions

Brewster Academy

Stephen F. Nelson, chairperson; F. Williams, vice chairperson.

21 June. (T. Clark, discussion leader): E. C. Ashby, "Single electron transfer: A major reaction pathway"; P. S. Skell, "Can excited states and radical ions be produced in thermal chain reactions?" (J. A. Kampmeier, discussion leader): L. Eberson, "The SO_N2 mechanism, or how chlorobenzene can be hydrolized in water at room temperature"; E. Wasserman, "Chemistry of sulfur."

22 June. (R. W. Alder, discussion leader): S. Leach, "Dissociative and non-dissociative relaxation pathways of electronically excited gas phase molecular ions"; J. M. McBride, "Determining the electronic state of radical pairs by EPR." (F. Gerson, discussion leader): R. G. Lawler, "Electron transfer between and within organic radicals"; H. Kurreck, "High resolution ENDOR spectroscopy of Flavin radicals."

23 June. (W. Ando, discussion leader): B. C. Gilbert, "E.S.R. studies of radical ions in aqueous solution"; S. Steenken, "Addition-elimination mechanism in electron transfer reactions." (A. Trifunac, discussion leader): D. Griller, "Kinetic studies of free radical and carbene reactions"; H. Schwarz, "Gas phase chemistry of enol cation radicals."

24 June. (M. Szwarc, discussion leader): C. S. Foote, "Studies on superoxide ion"; A. Weller, "Mechanism of spin dynamics of photoinduced electron transfer reactions." (F. Williams, discussion leader): short papers.

25 June. (G. Maki, discussion leader): M. Grätzel, "Interfacial photo-redox reactions in colloidal systems and their application in light-induced water cleavage processes"; G. L. Closs, "Magnetic resonance experiments on radical ions in photosynthesis."

Chemicals and Materials from Renewable Resources

Colby-Sawyer College

T. Kent Kirk, chairperson; Rajai H. Atalla, vice chairperson.

5 July. (I. Falkehag, session chairperson): D. A. I. Goring, "Topochemistry of the wood cell wall"; W. H. Robinson, "Latexes and other isoprenoids in hevia and guayule." (R. Atalla, session chairperson): M. S. Tanikella, "Chemical feedstocks from biomass."

6 July. (G. Brunow, session chairperson): K.-E. Eriksson, "Biotechnology in the pulp and paper industry"; J. G. Zeikus, "Energetics and metabolic control of fermentations for chemical production." Poster session. (G. Miksche, session chairperson): K. Hahlbrock, "Induction of phenylpropanoid biosynthesis in cultured plant cells."

7 July. (A. de Ruvo, session chairperson): K. Sarkanen, "Solvolysis lignin"; W. H. Starnes, Jr., "Mechanisms of oxidation by molecular oxygen." (K. Lundquist, session chairperson): G. Gellerstedt, "Chemistry of lignin and carbohydrate oxidation with hydrogen peroxide and related species."

8 July. (E. L. Ellwood, session chairperson): H. L. Hergert, "Production of textile fiber directly from wood"; D. Delmer, "Recent advances in the field of cellulose biosynthesis." (T. K. Kirk, session chairperson): V. Stannett, "Prospects for cellulose graft copolymers."

9 July. (H.-M. Chang, session chairperson): A. Ishizu, "Cellulose reactions in non-aqueous solvents." Discussion: (E. B. Cowling, discussion leader): "Innovation in biomass conversion."

Note: Applications will be considered for the 6 July poster session; send abstracts to T. K. Kirk, U.S. Forest Products Laboratory, P.O. Box 5130, Madison, Wisconsin 53593.

Separation and Purification

Colby-Sawyer College (N)

Jay E. Sobel, chairperson; Phillip C. Wankat, vice chairperson.

16 August. Advances in chromatography (C. Horvath, discussion leader): J. Knox, "Arguable aspects of ion pair chromatography"; B. Billingmeyer, "Surface interaction effects on chromatographic separations"; P. O. Larsson, "High performance affinity chromatography"; C. J. Van Oss, "Use of repulsive van der Waals forces in chromatographic separations."

17 August. Separations in biochemistry and bioengineering: F. Rignier, "High pressure liquid chromatographic separation of biopolymers"; R. Hartwick, "Separation of oligonucleotides"; R. Snyder, "Continuous flow electrophoretic separations of biomaterials on earth and in space"; J. Jorgensen, "High resolution separation of biomaterials based on electrophoresis and electro-osmosis."

18 August. Advances in membrane separations (A. Zelman, discussion leader): N. Lakshminarayanaiah, "Electro-osmosis"; A. Grodzinsky, "Electrofield control of membrane permeability"; J. Anderson, "Transport model for electrokinetic phenomena in charged microporous membranes"; P. A. Lanssan, "Membrane plasma phoresis-control of fouling in biological separations."

19 August. Advances in adsorption (S. Hellferich, discussion leader): D. Ruetheven, "Transport in zeolitic structures"; C. Tien, "Interaction of microbial activity on adsorption"; M. D. LeVan, "Thermal regeneration adsorption beds."

20 August. Extraction with reactive solvents: N. Hughes, "Chemical and mass transfer effects in extraction with reactive solvents"; R. Wyland, "Absorption and stripping of reactive solvents."

Applications

Scientists are invited to submit applications for attendance at the Gordon Research Conferences. An application blank is on page 1309 and may be submitted to Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, University of Rhode Island, Kingston, Rhode Island 02881.

Solid State Chemistry

Plymouth State College

John M. Longo, chairperson; Fritz Franzen, vice chairperson.

26 July. Synthesis (Mike Sienko, session chairperson): Bob Newnham, "Ferroic crystals and composites"; Cathy Rice, "Synthesis of new hydrogen compounds by ion exchange"; Paul Hagenmuller, "An approach for predicting new electronic configurations in solid state chemistry." (Don Murphy, session chairperson): Bill Glausinger, "Low temperature synthesis: An exciting route to new materials"; Greg McCarthy, "The effects of synthesis and chemical defects on x-ray powder diffraction intensities."

27 July. Catalytic materials (Aaron Wold, session chairperson): John Thomas, "New methods of probing the structure of catalytic solids"; Art Sleight, "Molybdate chemistry and catalysis"; Bob Grasselli, "Bismuth molybdate based ammoxidation catalysts." (Russ Chianelli, session chairperson): C. N. R. Rao, "Studies of solid surfaces by electron spectroscopy"; Marty Dines, "Layered M(IV) phosphonates."

28 July. Solid state ionics (John Goodenough, session chairperson): Bob Schöllhorn, "Topotactic redox reactions of solids with different lattice dimensionality"; Abe Clearfield, "Phase relationships and conductivity in the sodium zirconium silicophosphate system"; Sherman Susman, "LiAl—its microscopics: How can it be a fast ion conductor?" (Neil Bartlett, session chairperson): Du Shriver, "Polymer electrolytes"; Greg Farrington, "Ionic conductivity in β-alumina."

29 July. Nonstoichiometry (Leroy Eyring, session chairperson): Lars Kihlborg, "Stoichiometry and structural variability in intergrowth tungsten bronzes"; John Corbett, "Alkali metal and small nonmetal derivatives of the ZrCl structure"; Jack Johnson, "Intercalation chemistry of vanadyl phosphate." (John Goodenough, session chairperson): Jeremy Burdett, "A molecular chemist's view of the structure of the solid state."

30 July. Ordering in solids (Bob Roth, session chairperson): Tony Cheetham, "Studies in Si/Al ordering in some synthetic zeolites"; Ken Poeppelmeier, "Topotaxy and ordered defects in manganese perovskites."

Poster sessions: Posters are invited for late afternoon presentations on Monday through Thursday. Please send title to poster session chairperson: Ken Poeppelmeier, Exxon Research and Engineering, P.O. Box 45, Linden, New Jersey 07036 (201-474-3894).

Statistics in Chemistry and Chemical Engineering

New Hampton School

Toby J. Mitchell, chairperson; John A. Cornell, vice chairperson.

2 August. (George E. P. Box, moderator): David R. Cox, "Interaction." (William J. Dunn, moderator): Richard D. Kramer, "Some applications of principal components analysis to structure activity correlations."

An application blank for attendance at the Gordon Research Conferences may be found on page 1309. A summary of the program is on pages 1288 and 1289.

3 August. (Carol M. Newton, moderator): Stuart L. Beal and Lewis B. Sheiner, "Estimation of population pharmacokinetic parameters from routine patient data for clinical drug dosage optimization." (Robert G. Easterling, moderator): William H. Fellner, "Robust estimation of variance components, with industrial applications."

4 August. (Gary C. McDonald, moderator): Roy E. Welsch, "Bounded influence and graphical diagnostics for dirty data and flawed models." (David W. Bacon, moderator): Warren E. Stewart, "Kinetic modelling with multiple responses."

5 August. (Alonzo Church, moderator): William J. Welch, "A branch and bound algorithm for the choice of experimental designs in chemical engineering." (John W. Gorman, moderator): Gary E. Blau, "Computer aided design and analysis of integrated chemical processes: A new area for statistical analysis."

6 August. (Jane F. Gentleman, moderator): Wesley L. Nicholson, "Interactive color graphics—a tool for exploratory data analysis."

Stereochemistry

Plymouth State College

Albert I. Meyers, chairperson; Milan Uskokovic, vice chairperson.

28 June. K. N. Houk, "Computational methods for understanding and predicting of stereo-selectivities of organic reactions"; C. Liotta, "Unified theory of stereo-electronic control"; K. B. Sharpless, "The mechanism of the titanium-catalyzed asymmetric epoxidation of allylic alcohols."

29 June. G. Frater, "Control of erythro-threo selectivity by nonaldol type reactions"; C. H. Heathcock, "Methods for acyclic stereo-selection"; T. Mukaiyama, "New approaches to the synthesis of carbohydrates."

30 June. R. G. Bergman, "Homogeneous intermolecular oxidative addition of iridium to single C–H bonds in completely saturated hydrocarbons"; J. E. Bercaw, "Migratory insertion reactions of transition metal hydrides and alkyls."

1 July. U. Schollkopf, "Asymmetric synthesis of amino acids"; E. L. Eliel, "Asymmetric syntheses with 1,3-oxathianes"; S. Danishefsky, "Cyclocondensation of dienes and aldehydes-stereochemical dividends."

2 July. A. I. Scott, "Applications of NMR spectroscopy to some problems of asymmetry in biology"; H. G. Floss, "Studies on the stereochemistry of biological reactions."

Chemical Characterization of Structural Polymers

Holderness School

Clayton A. May, chairperson; John Gillham, vice chairperson.

14 June. (Clayton A. May, discussion leader): Richard J. Hinrichs, "Thermoset cure cycle development through rheological engineering diagrams"; Frank M. Kelley and Brian J. Swetlin, "A study of material and process factors influencing epoxy network fracture behavior." (Richard J. Hinrichs, discussion leader): Allan R. Schultz, "Photoinitiated cationic cure of epoxide polymers"; Gary L. Hagenauer, Margaret J. Roylance and Peter J. Pearce, A two-part discussion: I: "The effects of impurities on the properties and curing behavior of an epoxy resin"; and II: "The effects of impurities in an epoxy resin on the processability and properties of fiber-reinforced composites."

15 June. (David H. Kaelble, discussion leader): John K. Gillham, "Molecular and macroscopic time-temperature-transformation (TTT) diagrams and cure of thermoset systems"; Ivan J. Goldfarb, "Kinetics of thermoset curing in the glassy region." (John K. Gillham, discussion leader): Sanford S. Sternstein, "The influence of resin chemistry on mechanical properties"; Roger E. Morgan, "Structure performance relationships of epoxy matrices."

16 June. (Sanford S. Sternstein, discussion leader): David H. Kaelble, "Computer aided design and manufacture (CAD/CAM) of thermoset resins"; James C. Seferis, "Modeling of amine cured epoxies for processing and property determination in high performance composite systems." (Frank E. Karasz, discussion leader): Michael V. Kuzenko, "Characterization of structural polymers in Europe"; with comments on Japan by Frank E. Karasz; Ronald E. Alred, "Plasma activation of aramid fiber surfaces"; Robert J. Lagasse, "Influence of physical structure on mechanical properties and degradation of unmodified and rubber modified epoxy resins."

17 June. (Roger E. Morgan, discussion leader): Jovan Mijović, "Effect of hygrothermal fatigue on dynamic mechanical properties of epoxy resins composites"; Frank E. Karasz, "Network polymer-water interactions." (C. V. Wittenwyler, discussion leader): Edward M. Barrall, "Differential scanning calorimetry of exothermal processes applied to thermosetting resins"; Douglas J. Sober, "Epoxy/kevlar laminates for high density electronic packaging."

18 June. (Jovan Moacanin, discussion leader): William B. Jones, "Fracture behavior of aromatic heterocyclic thermosets"; Amitava Gupta, "A model for the primary process of energy deactivation in the tetraglycidylmethylenedianiline/diaminodiphenylsulfone system on excitation by high energy electrons."

Synthetic Membranes

Plymouth State College

William R. Galey and Elias Klein, co-chairpersons; John A. Quinn, vice chairperson.

5 July. Recent advances in synthetic membrane preparation (Harold K. Lonsdale, discussion leader).

6 July. Concentration polarization: Topics relevant to membrane separations (Clark C. Colton, discussion leader).

7 July. Applications of membranes to biotechnology (Stephen L. Matson, discussion leader).

8 July. Thin film technology: Its application to membrane science (John Crowley, discussion leader).

9 July. The application of membranes to gas separation technology (Harvey H. Hoehn, discussion leader).

Theoretical Biology and Biomathematics

Tilton School

Arthur Winfree and John J. Tyson, co-chairpersons.

14 June. Human sleep-wake cycle: R. Wever, "Circadian experiments and modelling"; C. Czeisler, "Resetting circadian clocks in man: Applications to clinical medicine and occupational health"; R. Kronauer, "Human sleep-wake rhythms: One, two, three oscillators—or more?" A. Winfree, "Is there a forbidden time for spontaneous waking?"

15 June. Biochemical control mechanisms: J. Hale, "Chaos and delays"; P. Rapp, "Dynamical systems theory and

the analysis of biochemical and biophysical control networks"; P. Painter, "Periodic gene expression in the trytophan operon." Cardiac arrhythmias: M. Allessie, "Visualization of atrial flutter and fibrillation"; J. Jalife, "Synchronization phenomena in the heart."

16 June. Cardiac arrhythmias (continued): S. Scott, "Coupling of cardiac myocytes via an ersatz nexus"; J. Keener, "Mathematical models for cardiac fibrillation"; L. Glass and M. Guevara, "Chaos in a petri dish: Nonlinear dynamics of a cardiac oscillator." Economics of renewable resources: C. Clark, "Search theory applied to fishery problems."

17 June. Economics of renewable resources (continued): R. May, "Management of natural populations"; J. Swierzbinski, "Uncertainty in fishery dynamics"; M. Sobel, "Variability in stochastic renewable resource models." Evolution of animal behavior: W. Hamilton, "Models of sex and mate choice in avoidance of disease."

18 June. Evolution of animal behavior (continued): J. Maynard-Smith, "Evolutionary game theory"; E. C. Zeeman, "Game dynamics."

Toxicology and Safety Evaluations

Kimball Union Academy

James S. Campbell, chairperson; Robert A. Scala, vice chairperson.

2 August. Mechanisms of carcinogenesis: Genetic, direct and indirect causes and effects (D. B. Clayson, discussion leader): E. Farber, "Biochemical mechanisms of carcinogenesis"; R. Shank, "Biochemical means of characterizing various carcinogenic pathways involving chemical and indirectly affecting genetic mechanisms of carcinogenesis"; G. Williams, "In vitro methods of characterizing various pathways in carcinogenesis."

3 August. Mechanisms of carcinogenesis: Genetic, direct and indirect causes and effects (continued) (D. B. Clayson, discussion leader): A. Sivak, "Mechanisms of promotion and co-carcinogenesis"; A. Kolbye, "Regulation of carcinogenic agents." The changing roles of pathology in toxicology and safety evaluation (R. G. Carlson, discussion leader): J. Burek, "Geriatric pathology: Its impact on long-term toxicity and carcinogenicity testing in rodents."

4 August. The changing roles of pathology in toxicology and safety evaluation (continued) (R. G. Carlson, discussion leader): R. Phillips, "The use of renal function tests in toxicity studies"; R. Bolender, "Contributions of morphometry to toxicology and safety evaluation"; L. Tryphonas, "Overview of neuropathology in safety evaluation—the increasing role of morphometry."

5 August. Behavioral assessments (S. Norton, discussion leader): J. Fox, "Behavioral assessment by clinical observation"; D. Rice, "Behavioral assessment in clinical observation"; D. Rice, "Behavioral assessment in laboratory animals and future applications in the regulatory setting"; R. Mowbray, "The behavioral toxicology."

6 August. Current research and progress in benzene toxicity—nature of the active metabolite(s) (R. Drew, discussion leader): B. Goldstein, "Possible roles of trans-muconaldehyde in benzene hematotoxicity"; R. Irons, "Modulation of lymphocyte transformation by quinone metabolites of benzene—evidence for a cytoskeletal dependent effect"; R. Snyder, "Novel pathways of benezene metabolism."

Vibrational Spectroscopy

Brewster Academy

Richard P. Van Duyne, chairperson; Cherry A. Murray, vice chairperson.

23 August. Surface vibrational spectroscopy—experimental: Richard K. Chang, "Enhanced Raman and nonlinear optical scattering from adsorbates on metal surfaces"; J. Demuth, "Electron energy loss spectroscopy from adsorbed molecules on surfaces"; P. Hansma, "Inelastic electron tunneling spectroscopy." Surface vibrational spectroscopy—theory: A. Nitzan, "Optical processes involving adsorbed molecules." Poster session.

24 August. Surface infrared spectroscopy—experimental: A. M. Bradshaw, "Infrared reflection/adsorption spectroscopy of adsorbates on clean metal surfaces"; R. Ryberg, "Oxidation of methanol on Cu(100) studied by infrared spectroscopy"; A. T. Bell, "Applications of Fourier transform infrared spectroscopy to studies of adsorbed species." Surface vibrational spectroscopy—applications: John T. Yates, Jr., "Vibrational studies of molecular interactions on catalytic surfaces."

25 August. Picosecond vibrational spectroscopy: M. D. Fayer, "Optical generation of acoustic phonons: Picosecond holographic grating experiments"; M. El-Sayed, "Picosecond resonance Raman spectroscopy of biomolecules"; G. Kenney-Wallace, "Picosecond vibrational relaxation and energy transfer in liquids." Picosecond infrared lasers: D. Cotter, "Picosecond infrared pulses generated by Raman scattering and nonlinear processes." Poster session.

26 August. Vibrational energy transfer: C. Wittig, "Laser vibrational spectroscopy of photofragmentation and other elementary processes"; D. S. King, "Internal state distributions of thermally desorbed molecules"; S. R. Leone, "Internal state distributions and vibrational relaxation in laser induced photochemistry." Solid state vibrational spectroscopy: H. Strauss, "Dynamics of solids by vibrational spectroscopy." Poster session.

27 August. Vibrational spectroscopy of free radicals, radical ions, and excited states: V. E. Bondybey, "Vibronic spectroscopy of radical ions in the gas phase and in matrices"; R. E. Hester, "Resonance Raman spectroscopy of free radicals and radical ions"; L. E. Brus, "Transient Raman spectroscopy of excited states and reaction intermediates."

Suggestions for paper presentations are welcome and should be directed to R. P. Van Duyne, Department of Chemistry, Northwestern University, Evanston, Illinois 60201.

Visible/UV Multiphoton Ionization and Dissociation

Colby-Sawyer College

Georgia J. Fisanick, chairperson; Melvin B. Robin, vice chairperson.

12 July. G. Mainfray, "Multiphoton ionization in atoms"; D. A. Lichtin and R. B. Bernstein, "Laser multiphoton ionization mass spectroscopy: An overview"; V. Vaida, "Mass resolved multiphoton ionization of transition metal complexes."

13 July. R. D. Levine, "Maximal entropy fragmentation patterns"; G. J. Fisanick, "Applicability and limitations of rate equation modelling in multiphoton ionization of molecules"; T. Baer, "Fragment kinetic energy release in multiphoton ionization"; S. Anderson and R. N. Zare, "Metastable ion fragmentation and electron energy analysis as a probe of MPI dynamics and fragmentation kinetics."

14 July. P. Houston, "Dissociation channels in UV/visible nonlinear excitation of molecules"; E. Grant, "Resonant multiphoton ionization probes of unmolecular decomposition products"; R. N. Compton and J. C. Miller, "Multiphoton ionization and third harmonic generation in atoms and molecules"; S. Colson

(subject to be announced); W. Chupka (subject to be announced).

15 July. A. Albrecht, "Multiphoton ionization in liquids"; K. C. Smyth, "Multiphoton ionization in flames: A new variation on optogalvanic spectroscopy." Poster session for late-breaking developments.

16 July. P. M. Johnson, "High resolution 2-photon spectroscopy of supercooled benzene and isotopically substituted species"; M. Ito, "Multiphoton ionization of NO."

Water and Aqueous Solutions

Holderness School

David Chandler, chairperson; Jacques Desnoyers, vice chairperson.

9 August. Scattering probes of structure and dynamics of aqueous systems (A. Narten, chairperson): G. W. Neilson, "Hydration and motion of ions in water by neutron scattering, or the second zone in aqueous ionic solutions"; S. H. Chen, "Local structure and dynamics of low temperature water as seen by neutrons"; M. L. Klein, "Comparison of theoretical and simulation models with scattering results from liquid water." Spectroscopic probes of structure and dynamics of aqueous systems (M. C. R. Symons, chairperson): M. G. Sceats, "Cooperative vibronic spectroscopy—a probe of rare ion hydration and ion-pair formation"; R. Cole, "Static and kinetic ion-solvent dielectric effects by time domain spectroscopy."

10 August. Micelles and microemulsions, I—theoretical (A. Ben-Naim, chairperson): H. Wennerstrom, "Principles of surfactant assemblies in aqueous systems"; F. H. Stillinger, Jr., "Field theory of micelles"; L. R. Pratt, "Monte Carlo study of simple models for micelles." Micelles and microemulsions, II—experimental (W. Kauzman, chairperson): K. Shinoda, "Thermodynamic aspects of surfactant phase"; J. H. Fendler, "Characterization and utilization of polymeric surfactant aggregates"; D. F. Evans, "Micelle formation in exotic hydrophobic solvents."

11 August. Protein assembly and stability (John Edsall, chairperson): M. Karplus, "Dynamics of macromolecules"; C. C. F. Blake, "The interface of water with proteins"; John A. Rupley, "Protein-water interactions." Poster session: Clustered according to subject matter. In addition to the topics of the main lecture sessions, we also encourage posters on (a) computer simulations of aqueous systems and (b) hydrophobic effects.

12 August. Aqueous systems at high pressures and/or temperatures (E. U. Franck, chairperson): R. Wood, "Hydration of apolar solutes at supercritical temperatures by high temperature calorimetry"; H. D. Holland, "Aqueous solutions in the earth's crust"; J. Jonas, "High pressure nuclear magnetic resonance studies of the dynamic structure of water." Metastable water (Felix Franks, chairperson): C. A. Angell, "New data on supercooled water including microemulsion experiments"; J. Teixeiri, "X-rays and neutron data in supercooled water: Recent results."

13 August. Electrons and electron transfer in water (N. R. Kestner, chairperson): H. Haberland, "Observation of free hydrated electrons, negatively charged water clusters in the gas phase"; M. Newton and H. L. Friedman, "Theory of electron transfer reactions in water"; G. Kenney-Wallace, "Dynamics of optically induced electron transfer in aqueous solutions and micelles."

Water and Solute Exchange in the Microvasculature

Plymouth State College

Harris J. Granger, chairperson; F. Chinard, C. Goresky, F. Vargas, co-vice chairpersons.

14 June. Regulation and exchange in the microcirculation (C. Crone, session chairperson): J. Rhodin, P. Johnson, B. Zweifach, speakers. Determinants of microvascular perfusion (P. Johnson, session chairperson): A. Groom, B. Klitzman, B. Fleming, H. Lipowsky, speakers.

15 June. Oxygen exchange (E. Renkin, session chairperson): R. Pittman, A. Popel, G. Bohlen, R. Prewitt, speakers. Endothelial cells (F. Chinard, session chairperson): U. Ryan, W. Joyner, J. Harlan, speakers.

16 June. Permeability of single microvessels—methodology (B. Zweifach, session chairperson): R. Gore, C. Michel, C. Crone, speakers. Permeability to small molecules (F. Vargas, session chairperson): R. Curry, C. Crone, J. Friedman, speakers.

17 June. Mathematical models (C. Goresky, session chairperson): J. Anderson, W. Deen, R. Curry, speakers. Macromolecular permeability (J. Diana, session chairperson): E. Svensjo, C. Michel, W. Joyner, and P. Harris, speakers.

18 June. Transcapillary fluid balance (A. Taylor, session chairperson): K. Aukland, M. Davis, R. Hogan, A. Hargens, speakers.