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13. ABSTRACT (Maximum 200 words)

~~Five~~ Gordon Conferences were supported by AFOSR during 1990. The Conference on Inorganic Chemistry was held in Wolfboro, NH July 30 to August 3. Total attendance was 98. 22 papers and 40 posters were presented. The Conference on Glass was held in Tifton, NH, June 25-29. Total attendance was 80 including 5 from Europe and Japan. 18 talks and 24 posters were presented. The Conference on Biocatalysis was held in Plymouth, NH, June 24-29. Total attendance was 113. 26 papers and 30 posters were presented. The Conference on Dielectric Phenomena was held in Plymouth, NH, July 22-27. Total attendance was 76. 20 papers and 15 posters were presented. The Conference on Physical Electrochemistry was held in New London, NH, July 29 to August 3. The Conference on Organometallic Chemistry was held in Newport, RI. June 24-29. Total attendance was 134. 26 papers and 57 posters were presented.

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AFOSR-89-0299

THE GORDON CONFERENCE ON INORGANIC CHEMISTRY 1990

Final Program Report

The 1990 Gordon Conference on Inorganic Chemistry was held at Brewster Academy, Wolfboro, New Hampshire from July 30 to August 3 1990 and had as its themes: the chemistry of inorganic molecular clusters, the chemistry of supermolecular inorganic materials, chemistry at inorganic surfaces, and reactive intermediates in inorganic chemistry. Twenty two papers were presented, plus an unscheduled contribution from the vice-chair at the end of the final session. Two poster sessions were held, comprising about forty posters. Invited speakers and session chairs were drawn from research groups in academia, industry and National Laboratories, and the program brought together world class chemists from the United States, Britain, France, West Germany, Canada and the U.S.S.R., in keeping with the worldwide level of research activity in these areas. The international scope of the program was greater than had been attempted in previous years for this conference.

The Conference was attended by ninety-eight registrants, and in addition to the customary mix of academic and industrial scientists, a significant number of graduate students and post-doctoral fellows attended. This was undoubtedly due to a well publicised offer of financial support for selected students and post-docs, awarded on the basis of poster presentations. As a result the poster sessions were of a uniformly high quality and gave to junior conferees a good oportunity to expose their work in an informal but scientifically rigorous atmosphere.

The Conference was characterized by particularly stimulating discussions between chemists in related but distinct areas of inorganic chemistry. Both after the formal talks and in the free discussion periods these interactions were evident, and they will lead to new initiatives, particularly in the areas of inorganic materials, cluster chemistry and catalysis. This was made clear to the organizers in the comments of the attendees, many of whom were delighted to find their work so relevant to chemists in what had previously seemed unrelated fields.

A-1

GORDON RESEARCH CONFERENCE
Inorganic Chemistry
Brewster Academy, Wolfboro, NH
July 30 - August 3 1990

John S. Bradley, Chairman Richard D. Adams, Vice Chairman

July 30, 1990

8:45 a.m. The Chemistry of Inorganic Clusters

Duward F. Shriver, Discussion Leader

1. Larry F. Dahl, University of Wisconsin Madison — Experimental - Theoretical Studies of Small to Giant Transition Metal Clusters: Problems and Solutions

2. Boon Teo, University of Illinois Chicago — Gold Fusion: From Clusters to Clusters of Clusters

3. D. Michael P. Mingos, Oxford University — Synthesis, Structure and Bonding in Metal Clusters

7:30p.m.

4. Richard Finke, University of Oregon Eugene — Polyoxoanions as New Materials for Atomically Dispersed Transition Metal Catalysts: Synthesis, Characterization, Catalytic Activity and Mechanism

5. Pierre Braunstein, Louis Pasteur University Strasbourg — Molecular Aspects of the Metal-Metal Bond

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July 31, 1990

9:00 a.m. The Chemistry of Inorganic Clusters (contd.)

Wayne Gladfelter, Discussion Leader

1. Thomas P. Fehlner, University of Notre Dame — Transition Metal-Main Group Clusters and Solid State Materials

2. Suzanne Harris, Exxon Corporate Research — Bonding in Heterometallic Clusters

Supermolecular Inorganic Chemistry

3. Brian F. G. Johnson Cambridge University	Metal Clusters, Particles and Crystallites
7:30p.m.	
4. Michael Steigerwald AT&T Bell Laboratories	Molecular Routes to Solid State Compounds
5. Thomas Bein University of New Mexico Alberquerque	Synthesis and Characterization of Clusters and Organometallics in Zeolites

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August 1, 1990

Supermolecular Inorganic Chemistry(contd.)

9:00 a.m. John Bradley, Discussion Leader

1. Reinhard Kremer Max Plank Institute Stuttgart	Electronic Delocalization and Spin Properties in Lanthanide Compounds with Discrete and Condensed Clusters
2. Jeremy K. Burdett University of Chicago	Some New Theoretical Ideas Linking Molecules,Surfaces and Solids
3. Ilya I. Moiseev N. S. Kurnakov Institute of General and Inorganic Chemistry Moscow	Synthesis, Structure and Catalytic Activity of Giant Palladium Clusters
7:30 p.m.	
4. Larry Lewis General Electric Corporate Research and Development	Preparation and Characterization of Platinum Group Metal Colloids: Crossroads Between Clusters and Surfaces
5. Günther Schmid Institute for Inorganic Chemistry Essen	Large Transition Metal Clusters and Colloids: Bridges between Homogeneous and Heterogeneous Catalysis

---

August 2, 1990

Inorganic Chemistry On and In Inorganic Solids

9:00 a.m. Robert J. Madix, Discussion Leader

1. Ralph Nuzzo AT&T Bell Laboratories	Structure-Reactivity Correlations in Surface Organometallic Chemistry
2. Cynthia M. Friend Harvard University	Mechanistic and Structural Surface Chemistry
3. Laurent Bonneviot Laval University Quebec	Preparation, Structure and Stability of Transition Metal Ion Deposits on Amorphous Silica

7:30p.m. Robert J. Madix, Discussion Leader

4. Thomas E. Mallouk University of Texas Austen	Light Driven Electron Transfer Reactions in Microporous Solids
5. Shirley Chiang IBM Research Division Almaden	Scanning Tunneling Microscopy of Adsorbed Molecules on Surfaces

---

August 3, 1990

Mechanistic Investigations in Inorganic Chemistry

9:00 a.m. R. D. Adams, Discussion Leader

1. Robin N. Perutz University of York	Plotting the Course of C-H Activation Reactions-Reactive Intermediates in Organometallic Chemistry
2. John R. Shapley University of Illinois Urbana	Pressure Tuning Spectroscopy - Applications in Metal-Metal Bonded Systems

3. Wrap-up and Discussion

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AFOSR-89-0299

1990 GORDON CONFERENCE ON GLASS
TILTON, NEW HAMPSHIRE
JUNE 25-29, 1990

FINAL REPORT
Robert J. Eagan, Chair

The 1990 Gordon Conference on Glass, entitled "Defects in Glass" successfully integrated scientific studies performed by scientists in the "classical" glass community, the semiconductor community, and several involved in peripheral work, e.g., the surface force interactions of water with inorganic materials. Several previously unreported or unrecognized observations were reported. Three examples are:

1) The possible relationship of E' (optical defect) centers to fracture propagation emerged for the first time and will lead to further collaborative studies.

2) New nucleation and crystallization data for zinc fluoride glasses, obtained with a novel heating stage and optical microscope, were presented.

3) Surface force interaction measurements may lead to understanding electronic defects in silica films—a surprise to the presenter! New collaborations will undoubtedly develop.

The attendees and presenters represented industry, academia (students and faculty), national laboratories, and several scientists from Europe and Japan. Eighteen speakers were joined by twenty-four participants in two poster sessions. The nine discussion leaders did a good job leading frequently spirited discussions. Total attendance was eighty, including five from Europe and Japan.

Enclosure:
Program

WK=West Knowles
EK=East Knowles
M=Moore Hall
P=Pheiffer

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GORDON CONFERENCE ON GLASS

Senior Poster Session - Tuesday Evening

Author/Institution	Poster Title
R. J. Araujo Corning, Inc.	Statistical Mechanical Calculation of Peroxyl in Silica
R. Cooper University of Wisconsin	Chemical Diffusion and Crystalline Nucleation in Transition-Metal-Doped Aluminosilicates
J. T. Dickinson, S. C. Langford, and L. C. Jensen Washington State University	Consequences of Simultaneous Bombardment of Sodium Trisilicate Glass With UV Excimer Irradiation and keV Electrons
D. Inniss, D. Brownlow, C. Kurkjian AT&T Bell Laboratories	The Strength and Fatigue of Silica Fibers in Sodium Chloride Solutions
A. A. Kruger Battelle Pacific Northwest Lab.	The Effect of Surface Treatments of Silica and Silicate Glass Fibers on Their Mechanical Properties
C. Kurkjian, R Farrow, D. Inniss AT&T Bell Laboratories	High Resolution Scanning Microscopy of Glass Fiber Surfaces
W. Moddeman EG&G Mound Applied Technologies	Zero Valent Nickel in Glass
K. Nagasawa Sagami Institute of Technology	The Cause of the Intrinsic Luminescence at 2.7 eV in Pure Silica Glass
S. V. Raman and K. Matsuishi Texas Center for Superconductivity	Glass-like Structural Relaxation in Crystalline $YBa_2Cu_3O_{7-y}$ Perovskite Structure
J. Simmons University of Florida	XPS Studies of Fluoride Glass Films
P. A. Tick, T. Kanamori S. Mitachi, S. Takahashi, R. Maschmeyer, K. Lu Corning, Inc.	Hot Stage Optical Microscopy (includes video presentation)

1990 Gordon Conference on Glass
June 24-29, 1990
The Tilton School
Tilton, New Hampshire

PROGRAM

Chair: Robert J. Eagan

Vice-Chair: Marvin J. Weber

Monday, June 25, 1990

Discussion Leader	**Robert J. Eagan**	
Speaker	David Turnbull	Physics & Chemistry of Glass Formation
Speaker	C. Jeffrey Brinker	Structure of Sol Gel Silicate Glasses
Speaker	John Batey	Structural Properties of Thin Film, PECVD SiO_2
Discussion Leader	Richard K. Brow	
Speaker	Kenneth F. Kelton	Nucleation & Phase Separation in Glasses
Speaker	Minoru Tomozawa	Water & Defects in Glass

Tuesday, June 26, 1990

Discussion Leader	**Suresh Gulati**	
Speaker	Terry A. Michalske	The Role of Strain Induced Defects in the Fracture of Silica Glass
Speaker	J. Thomas Dickinson	Fracto-emission from Glass Surfaces & Interfaces
Speaker	Charles R. Kurkjian	Strength Degradation in High Strength Fibers
Discussion Leader	Marvin J. Weber	
Poster Session	Senior Scientist/Faculty Posters and Discussion	

Wednesday, June 27, 1990

Discussion Leader	**Robert J. Eagan**	
Speaker	Tetsuro Izumitani	Defects on the Surface of Optical Glasses
Speaker	Douglas T. Smith	Surface Forces in SiO_2 - Water Interactions
Speaker	Jon K. West	Silica Cluster Models
Discussion Leader	James E. Shelby, Jr.	
Poster Session	Student Posters and Discussion	

Thursday, June 28, 1990

Discussion Leader	**Joseph Simmons**	
Speaker	Douglas Allan	Structure & Defects in Oxides by Electronic Structure/Total Energy Methods
Speaker	Frank L. Galeener	X-ray Induction of Spin Active Defects in Vitreous Silica
Speaker	Kazuo Arai	Nature of Defects of Doping in Silica Glasses
Discussion Leader	Norbert J. Kreidl	
Speaker	Delbert E. Day	Targeted Radiation Therapy in Humans Using Glass Microspheres

Friday, June 29, 1990

Discussion Leader	**Tetsuro Izumitani**	
Speaker	David L. Griscom	Physics & Chemistry of Defects in Silica Glass & At the Si/SiO_2 Interface
Speaker	Patrick Lenahan	Detection of Defects in Glass: Electronic Measurements
Speaker	Andreja R. Silin	Point Defects: Radiation Induced Defects in SiO_2

Senior Poster Participants:

Albert A. Kruger	The Effect of Surface Treatments of Silica and Silicate Glass Fibers on Their Mechanical Properties
K. Nagasawa	The Cause of the Intrinsic Luminescence at 2.7 eV in Pure Silica Glass
S. V. Raman	Glass-like Structural Relaxations in Crystalline $YBa_2Cu_3O_{7-y}$ Perovskite Structure
P. A. Tick	Hot Stage Optical Microscopy
D. Inniss	title unavailable
R. J. Araujo	Statistical Mechanical Calculation of Peroxyl in Silica
Reid Cooper	Chemical Diffusion and Crystalline Nucleation in Transition-Metal-Doped Aluminosilicates
W. Moddeman	Zero Valent Nickel in Glass
J. Simmons	title unavailable

Student Poster Participants:

C. A. Capozzi	title unavailable
Kathleen Cerqua	The Role of Defect Processes in Low-T_g Chalcogenide Glasses
J. Huang	Structural Relaxation in Thin Glass Fibers
Mark Jupina	A ^{29}Si Hyperfine Study of the P_b Center and E' Center in Metal-Oxide-Semiconductor Devices
Sriraman Kannan	Excimer Laser Damage Studies on Synthetic Silica Glasses and Fibers
Jeffrey Kohli	title unavailable
Victor Levin	title unavailable
Jie Li	Draw Induced Defect/Ultraviolet Radiation Response Mechanisms in Synthetic Silica Optical Fibers
Willorage Perera	The Surface Corrosion of Glasses
Hema Senapati	Effects of Anion Mixing on Structural Relaxation and Viscosity Decoupling in AgI-Ag_2SO_4-Ag_2WO_4 Glasses
Cathy Shaw	Oxygen Related Defects in Barium Gallosilicate Glasses
Tom Swiler	Molecular Dynamics Fracture of Crystalline and Vitreous Silicon Dioxide
William Warren	Electron Nuclear Double Resonance and Electron Paramagnetic Resonance Study of Silicon Dangling-Bond Centers in Silicon Nitride
David Zirl	Simulations of the Structure and Properties of Sodium-Aluminosilicate Glasses

GORDON RESEARCH CONFERENCE
BIOCATALYSIS
PLYMOUTH STATE COLLEGE - NORTH
JUNE 24-29, 1990

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BIOCATALYSIS
GORDON RESEARCH CONFERENCE
Plymouth State College
June 25-29, 1990

Co-Chairmen:
J.B. Jones & D.L. Anton

Co-Vice Chairmen:
J. Frost, J.D. Rozzell

Sunday, June 24 4:00-6:00 p.m. Chairmen's Reception

Monday, June 25 9:00 a.m. **Chiral Synthesis**

Discussion Leader: Larry Baresi

Charles Sih	*Chemo-enzymatic Synthesis of Natural Products*
Keith Kyler	*Chemoenzymatic Synthesis*
Manfred Schneider	*Enzymic Preparation of Enantiomerically Pure Compounds*

Monday, 4:00 - 6:00 p.m. **Poster Session I.**

Monday, 7:30 p.m. **Synthesis of Commercially Important Compounds**

Discussion Leader: John Frost

Hideaki Yamada	*Enzymatic Conversion of Nitriles into Useful Amides and Acids*
Hans Schoemaker	*Chemo-enzymatic synthesis of enantiomerically pure amino acids and related compounds*

Tuesday, 9:00 a.m. **Synthesis of Useful Compounds**

Discussion Leader: Terry Lieb

Cary Morrow	*Enzymatic polymerizations*
David Rozzell	*Cis-muconic Acid biosynthesis*
George Whitesides	*Carbohydrate Synthesis*

Tuesday 4:00 - 6:00 p.m. **Poster Session I.**

Tuesday 7:30 p.m. **Mutagenesis**

Discussion Leader: Byron Rubin

Frances Arnold	*Enzyme Engineering for non Aqueous solvents*
Jeremy Knowles	*Manipulative Mutagenesis*

Wednesday 9:00 a.m. **Enzyme Models**

Discussion Leader: Carl Johnson

T. Ross Kelly *Bisubstrate Reaction Templates*

Fraser Stoddart *Enzyme Mimics to Molecular Self Assembly*

Al Tramontano *Catalytic Antibodies*

Wednesday 4:00 - 6:00 p.m. **Poster Session II.**

Wednesday 7:30 p.m. **Enzyme Structural Aspects**

Discussion Leader: David Anton

Arieh Warshel *Mutagenesis Calculations*

Alexander Klibanov *Irreversible Enzyme Inactivation*

Thursday 9:00 a.m. **Synthesis with Pathways**

Discussion Leader: Bryan Jones

Greg Petsko *Mandelate Racemase, Evolution of Metabolic Pathways*

Charles Goodhue *Pentaerythritol Pathway*

Juan Ramos *Metabolic Pathway Engineering*

Thursday 4:00 - 6:00 p.m. **Poster Session II.**

Thursday 7:30 p.m. **Alkane Activation**

Discussion Leader: Jonathan Dordick

Howard Dalton *Methane mono-oxygenase*

John Lipscomb *Methane mono-oxygenase*

Friday 9:00 a.m. **Engineering Aspects**

Paul van Eikeren *Membrane-Assisted Regeneration of NAD Cofactors*

Jonathan Dordick *Kinetics and Thermodynamics of Non-aqueous Enzymology*

Christian Wandrey *Enzyme Reaction Engineering*

Biocatalysis Gordon Conference
Poster Session Participants

Name	Title	Affiliation
Monday-Tuesday		
Fredrik Bjorkling	"Indirect Lipase Catalyzed Epoxidation"	Novo Nordisk A/S Denmark
Debbie C. Crans	"Spontaneously Formed Organic Vandates Bind Better than Organic Phosphates to Selective Enzymes: Glucose-6-Phosphate Dehydrogenase"	Colorado State Univ.
V. H. M. Elferink	"Biotechnological Production of S-2,2-dimethyl-1,3-dioxolane-4-methanol (S-DDM)"	Andeno B. V. The Netherlands
Mark W. Empie	"Biotechnological Resolution of Racemic Isopropylidene Glycerol"	International Bio-Synthetics, Inc.
Kurt Faber	"On the Catalytic Activity of Solid Enzymes in Organic Solvents"	Graz Univ. of Tech. Austria
Thomas Graycar	"The Functional Consequences of Introducing a Positive Charge in Close Proximity to the Catalytic Serine of Subtilisin"	Genencor, Int.
A. B. Hanley	1) "The Enzymic Production of 1-methoxyindolyl-3-methyl isothiocyanate - An Unstable Intermediate in Indole Glucosinolate Breakdown" 2) "The Intrinsic Proteolytic Activity of Ubiquitin"	AFRC Institute of Food Research
Ronald L. Hanson	"Synthesis of L-β-Hydroxyvaline by Leucine Dehydrogenase from Bacillus Species"	Bristol-Myers Squibb
David L. Hughes	"Lipase-Catalyzed Asymmetric Hydrolysis of Esters Having Remote Chiral/Prochiral Centers"	Merck, Sharp & Dohme Research Laboratories
Ronald J. Huss	"Biological Production of Phenylacetylene Cis-Dihydrodiol"	Bio-Technical Resources

Carl R. Johnson	"Immobilization of Enzymes on Azlactone Beads"	Wayne State Univ.
Jerald K. Rasmussen (to be adjacent to Carl R. Johnson)	"Azlactone-Functional Polymer Beads - A New Reactive Support for Proteins and Enzymes"	3-M Health Care
Romas J. Kazlauskas	"A Rule to Predict Which Secondary Alcohols are Efficiently Resolved by Cholesterol Esterase, Lipase from *Pseudomonas cepacia*, and Lipase from *Candida cylindracea*"	McGill University
Yu-Yen Linko H. -C. Yu	"Ester Synthesis by Various Lipases"	Helsinki University of Technology Finland

<u>Wednesday-Thursday</u>

Kevin Burgess	"Biocatalytic Resolutions of Sulfoxide Esters"	Rice University
Koji Kubota	"Enzymatic Synthesis of Nucleoside Analogs having Antiviral Activity"	Ajinomoto Co., Inc. Japan
Terry K. Leib	1) "Tyrosinase-catalyzed Hydroxylations of Aminoaromatic Compounds" 2) "Biological Reduction of Nitroaromatic Compounds"	General Electric Co.
David Mobley	"Aspergillus-Catalyzed Hydroxillations of Biphenyls and Terphenyls"	General Electric Co.
Monica Palcic	"Use of Glycosyltransferases for the Synthesis of Oligosaccharide Analogs"	Univ. of Alberta
Manfred Philipp	"The Catalytic Hydrolysis of Mandelonitrile"	CUNY
Sergio Riva	"Regioselective Chemoenzymatic Acylation of Flavonoid Glycosides"	Instituto di Chimica Degli Ormoni Italy
Enzo Santaniello	"Enzymes in Organic Solvents: Enantioselective Transesterification of λ-Methyl Substituted Primary Alcohols Catalyzed by a Lipase"	Univ. of Milano Italy

Peter Seufer-Wasserthal	"Facile Preparation of Both Enantiomers of the Useful Intermediate Dimethyl Maleic Acid"	Graz Univ. of Tech.
D. Stevenson	"Enzymic Catalysis in Nitrile Chemistry"	National Research Council, Canada
Takayuki Uwajima	"Chemo-Enzymatic Synthesis of ℓ-Leucovorin, an Augmentor of 5-Fluorouacil Cytotoxicity Against Cancer"	Kyowa Hakko Kogyo Co. Tokyo, Japan
Gregg Whited	"Acyltransferase: A New Enzyme for Chiral Synthesis"	Eastman Kodak Research Laboratories
Edmund Ziomek	"Aminoadipoyl Amidohydrolases: A Use of Chromogenic Cephalosporin C Analogues"	National Research Council, Canada
Milton J. Zmijewski, Jr.	"Enantioselective Acylation of a Key Chemical Intermediate in the Synthesis of Loracarbef, a New Beta-lactam Antibiotic, Using Penicillin G Amidase"	Eli Lilly and Co.

Biocatalysis Gordon Conference
Poster Session Participants

Late Additions

Name	Title	Affiliation
Monday - Tuesday		
M. Catriona Tedford	"Novel Protein-Based Catalysts"	Univ. of Strathcyde
Thomas Roetig	"Synthesis of Hydrophobic Substances in Enzyme Membrane Reactors"	Fraunkhofes Institute
Wednesday - Thursday		
Ho Nam Chang	"Continuous Production of Penicillin Acylase from High Density Cell Culture"	Kaist, South Korea

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1990 GORDON RESEARCH CONFERENCE ON DIELECTRIC PHENOMENA

Final Progress Report

AFOSR Grant 89-0279

The 1990 Gordon Conference on Dielectric Phenomena was held at Holdermess School, Plymouth, New Hampshire from July 22 to 27. The conference had 76 participants of which 31% were from overseas. Countries represented included Great Britain, Germany, Argentina, Hungary, Canada, Japan, Italy as well as the U.S. Conferees were a mixture of scientists from universities, industries and national laboratories. A significant fraction were first-time attendees at the Dielectric Phenomena conference.

As always in this Conference, there was a mix of scientists interested in microscopic (e.g. relaxation) and macroscopic (e.g. dielectric breakdown) phenomena in macromolecular and low molecular weight systems. The program consisted of twenty formal presentations and a poster session of fifteen papers. A significant number of papers dealt (as usual at this Conference) with relaxation in glasses; new experimental techniques were described which extended the frequencies into the gigahertz range. Liquid crystals, both high and low molar mass, were dealt with in three presentations. One session (3 papers) dealt with dielectric studies of the interaction of water with both synthetic and naturally-occurring polymers. Two papers dealt with non-linear optical phenomena including applications to processing devices. The role of polymers and non-polar liquids as dielectric insulators was covered from different points of view in four contributions.

An informal assessment concluded that the Conference was a success in terms of quality of presentation, topics covered and audience participation. At the business meeting there was a unanimous vote of approval for the Dielectric Phenomena Gordon Research Conference to be held again in the summer of 1992.

GORDON RESEARCH CONFERENCE 7/19

Dielectric Phenomena

Holderness School

Frank E. Karasz (Chairman) J.T. Bendler (Vice-Chairman)

July 22-27, 1990

MONDAY A.M.

J.E. Anderson (Discussion Leader)

C. Austen Angell (Arizona State)	"Relation Between Structure and Non-exponential Relaxation in Liquids and Glasses"
S. Sridhar (Northeastern University)	"Dielectric Spectroscopy at Gigahertz Frequencies in Liquids and Solids"
Marc L. Mansfield (Michigan Molecular Institute)	"Dielectric Relaxations of Dilute Polymer Solutions with Application to the Poly(alkene sulfones)"

MONDAY P.M.

John T. Bendler (Discussion Leader)

Poster Session

TUESDAY A.M.

William J. MacKnight (Discussion Leader)

F. Kremer (Max Planck Institute)	"Molecular Dynamics in Low Molar Mass and Polymeric Ferroelectric Liquid Crystals"
Graham Williams (Swansea, UK)	"Molecular Dynamics and Microscopic Alignment Behaviour of Liquid Crystalline Polymers as Studied by Dielectric Relaxation Spectroscopy"
Armand R. Tanguay (Univ. of S. California)	"The Critical Role of Dielectric Materials in Optical Information Processing and Computing Devices"

TUESDAY P.M.

Shiro Matsuoka (Discussion Leader)

Richard H. Boyd (Utah)	"Subglass Dielectric Relaxations in Polymers"
H. Block (Cranfield Inst. of Technology, UK)	"Fluid Flow, Polarization and Rheology"

WEDNESDAY A.M.

P. Keith Watson (Discussion Leader)

Erich E. Kunhardt (Polytechnic Univ.)	"Electron Macro Kinetics in Liquids"
Martin A. Abkowitz (Xerox)	"Electronic Transport in Polymeric Insulators"
T. Mizutani (Nagoya University)	"High Field Phenomena in Insulating Polymeric Films"

WEDNESDAY P.M.

Robert L. Fulton (Discussion Leader)

P. Hedvig (Research Inst. for Plastics, Budapest)	"Dielectric and Mechanical Relaxation in Crosslinked Polymers"
S. Havriliak (Rohm and Haas)	"Dielectric Relaxation and Molecular Dynamics"

THURSDAY A.M.

Gyorgy Banhegyi (Discussion Leader)

Polykarpos Pissis (National Technical Univ., Athens)	"Dielectric Studies of Water in Polymers and Biopolymers"
R. Pethig (Bangor, UK)	"Dielectric Studies of Protein-Water Interactions and Associated Proton Transport Processes"
Douglas Kell (Aberystwyth, UK)	"Linear and Nonlinear Dielectric Properties of Biological Materials"

THURSDAY P.M.

J.D. Hoffman (Discussion Leader)

David W. McCall (Bell Labs)	"National Commission on Superconductivity"

FRIDAY A.M.

J. Pochan (Discussion Leader)

J. Keith Nelson (R.P.I.)	"A Physical Basis for the Dielectric Design of Solid/Liquid Structures"
James M. O'Reilly (Kodak)	"Study of Miscible and Immiscible Polymer Blends by Dielectric Relaxation"
George Stegeman (Univ. of Arizona)	"Nonlinear Optical Phenomena in Thin Films"

B = BREWER
C = COTTAGE
HAM = HAMMOND
H = HOIT
K = KELSER
L = LIVERMORE
LO = LOOKWOOD

GORDON RESEARCH CONFERENCES
HOLDERNESS SCHOOL, PLYMOUTH, N.H.
DIELECTRIC PHENOMENA
JULY 23-27, 1990

M = MARSHALL
N = NILES
NO = NOURSE
O = OFF CAMPUS
R = RATHBUN
S = SARGENT
W = WEBSTER

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THE CHAIRMAN'S REPORT ON THE GORDON CONFERENCE

ON PHYSICAL ELECTROCHEMISTRY

JULY 29 - AUGUST 3, 1990

COLBY JUNIOR COLLEGE

NEW LONDON, NEW HAMPSHIRE

Report on Gordon Conference:

The meeting was divided into five sections: the first was on the structure of the interfacial region, (Dr. David Schiffrin from the University of Southhampton chaired this session.)

The second section was on experimental approaches to quantum aspects of the double layer. This section was chaired by Professor Joseph Hupp from Northwestern University. The session on nuclear electrochemistry, an unusual topic, was chaired by Dr. Fritz Will, and that on new experimental methods by William O'Grady. Finally, the bioelectrochemistry section on the Friday morning was chaired by Professor Adam Heller from the University of Texas.

All these sections had their outstanding moments and a few of these may be related. Dr. McLaughlin, for example, speaking on the structure of interfaces, made clear that he thought that the Gouy-Chapman relationship was still true, even though it was not applicable to double layers at the metal-solution interface or the semiconductor interface. He managed to apply it by moving the fiducial plain out into the solution.

Dr. Heegar at the University of California was electrifying in the evening when he told us about the progress that had been made with electronically conducting polymers and made clear that he thought it likely that the polymers would exceed metals and their conductivity. It was a matter of the length of the segment in which the electron was allowed to flow. If the segment was long enough then eventually the conductance of a fiber could rise to about 5 orders of magnitude greater than that of a metal! This would make hot superconductivity unnecessary.

The new field of nuclear electrochemistry was, of course, as usual, one of great controversy but the encouraging thing was that the Chairman had just returned from a trip to Japan where he had got to talk to some of the 50 Japanese groups, amounting to 1000 workers who are now researching cold fusion in that country. Dr. Will reported the neutron bursts about one million per second (10^5 greater than observed here) and he told us of the formation of tritium by some of these groups.

Then, on the Thursday, the most impressive paper turned out to be that in the evening by Dr. Bruce Schardt. The Chairman described it as a tour de force because of the vigorous way in which Dr. Schardt described the best way to obtain good pictures at atomic resolution.

On the Friday morning the most outstanding paper was that given by Dr. Hill, - who has recently been appointed a Fellow of the Royal Society, - who told us of his researches in electron transfer kinetics to substances of biological origin.

The Gordon Conference in Physical Electrochemistry of 1990 was said by some to be the most outstanding of the three conferences which have been held so far and it is hoped that the new Chairman, Professor Hector Abruna from the Cornell University, will be joined by the freshly elected Vice Chairman, Dr. William O'Grady, of the Naval Research Laboratory in Washington, for the 1992 Conference.

John O'Brien

Aug 6, 1990.

Chairman's Final Progress Report

1990 Gordon Research Conference on Organometallic Chemistry

Air Force Office of Scientific Research Contract No. 90-NC-047

The 1990 Gordon Research Conference on Organometallic Chemistry was held from June 24 - 29, 1990 at Salve Regina College in Newport, R. I. A total of 134 participants was selected from approximately 150 applications. Attendance was well divided between academic (88), industrial (43) and national laboratory (3) participants. Thirteen participants were from countries outside the United States, and 12 were women. A copy of the participants list is attached.

Based on its success in last year's program, the conference retained the policy of scheduling a relatively large number of short (30-minute) invited talks combined with substantial amount of time for discussion following each presentation. This format minimized the tendency of speakers to rehash published work and (as the Gordon Conference administration suggests) encourages them to focus on their most important and timely results. In addition, 57 participants chose to present recent research results in poster form. Because of the large number of posters a full poster session was arranged for each evening of the conference except Sunday. These sessions were held in the informal discussion area, which has been equipped by Salve Regina college with air conditioning, tables, excellent lighting, and a refreshment facility. Because of the quality of the contributions and facilities, the posters attracted a great deal of attention and generated much lively discussion during the conference.

Another successful policy continued from last year was the six speaking slots open until the first evening of the meeting. At that time, the best poster submissions were selected by a committee appointed by the chairman, and the authors of these posters were invited to give talks rather than poster presentations in the open time slots. One change from last year was that these "poster talks" were distributed throughout the five days of the meeting, rather than being concentrated on Friday morning. This procedure was again very successful; some of the most exciting and timely discoveries presented at the meeting appeared in these last-minute selections. Including the poster talks, 32 oral presentations were made at the meeting. A copy of the complete program is enclosed with this report.

Individuals were invited to the conference in three categories: invited speakers, session chairs, and members of the committee to select the six poster talks. Because almost all the invitations were accepted, this resulted in attendance by many of the most important scientists in organometallic chemistry and allied fields. In assembling the speaker list we worked to maintain a balance of mainstream topics (e.g., transition metal and main group organometallic synthesis and reaction mechanisms; homogeneous catalysis; applications to organic synthesis) with new areas in which organometallic chemistry is currently or potentially having a significant impact (synthesis of new materials such as thin films and polymers, interfacial phenomena, surface science, new physical techniques).

Judging from informal comments of participants, the best talks at the meeting came from both mainstream organometallic and interdisciplinary areas. Highlights of the meeting were John Ellis and John Cooper's presentations on the preparation of novel new anionic "negative oxidation state" organometallic complexes, Robert Miller's talk on the chemistry of polysilanes, the lecture by Tobin Marks on the use of lanthanide complexes as catalysts useful in organic synthesis, Eric Jacobsen's poster talk on a dramatic new method for catalytic asymmetric epoxidation of unfunctionalized alkenes, Morris Bullock's poster talk

on radical intermediates involved in the reactions of metal hydrides with alkenes, Sylvia Ceyer's presentation on the mechanism of methane activation on metal surfaces, and Bradford Wayland's lecture on C-H bond reactions of porphyrin complexes. Two invited speakers also received important awards just before the meeting--Harry Gray received the Priestly medal of the American Chemical Society, and Susan Thomas was awarded the Meldola medal of the Royal Society of Chemistry. We were especially gratified that Dr. Gray was able to participate. In true Gordon Conference tradition, he arrived Saturday evening, spent the entire week at the meeting, and gave an excellent talk Thursday evening on platinum photochemistry and photocatalysis. Gray's enthusiasm was mirrored by the high degree interaction of the other participants.

To provide an indication of the quality of the conference, as well as the sort of interaction stimulated among the attendees, attached to this report are copies of letters received by the chairman from several of the participants in early July. Although we have not yet received the formal questionnaires filled out at the meeting, it seems clear from these letters and other comments made to the organizers that the 1990 Gordon Conference on Organometallic Chemistry was exceptionally successful.

Attachments

GORDON CONFERENCE ON ORGANOMETALLIC CHEMISTRY

Salve Regina College, Newport, R. I.

June 24 -29, 1990

Chair: Robert G. Bergman; Vice Chair: Alfred P. Sattelberger

Poster talk selection committee: Maurice Brookhart, Henry E. Bryndza, Nancy M. Doherty, John A. Gladysz, Jack R. Norton, Peter T. Wolczanski

Monday, June 25

Session 1: Exploratory Organometallic Synthesis, Reactivity, and Mechanisms

Chair: Denis Forster (Monsanto Company)

Heinz Berke (University of Zurich)
"How to Make Transition Metal Hydrogen Bonds More Reactive: A Conceptual Approach and Its Experimental Consequences"

Thomas C. Flood (University of Southern California)
"Mechanisms of Bond Activations by Soluble Complexes of Iridium and Osmium"

John E. Ellis (University of Minnesota)
"New Synthetic Routes to Highly Reduced Organometallics"

Two papers selected from poster submissions

Session 2: Applications to Organic Synthesis and/or Chiral Organometallic Chemistry

Chair: Richard J. Piccolini (Rohm and Haas Company)

Yoshihiko Ito (Kyoto University)
"Asymmetiric Aldol Reactions of α-Isocyanocarboxylates and Related Isocyano Derivatives Catalyzed by Chiral IB Metal Complexes"

N. John Cooper (University of Pittsburgh)
"The Application of Diastereomeric Tungstenocene Complexes Containing Chiral Metal Centers to the Study of Organometallic Reactions"

S.E. Thomas (University of Warwick)
"Reactivity of Heterodiene Metal Carbonyl Complexes"

Tuesday, June 26

Session 3: Main Group Organometallic Chemistry

Chair: John E. Bercaw (California Institute of Technology)

Dr. Peter Jutzi (University of Bielefeld)
"π-Complexation in Main-Group-Chemistry - Some Recent Results"

Lawrence R. Sita (Carnegie Mellon University)
"New Chemistry of Polycyclic Organostannanes"

Gerard Parkin (Columbia University)
"Poly(pyrazolyl)hydroborato Alkyl Derivatives of the s- and *p*-block Metals"

Two papers selected from poster submissions

Session 4: Organometallic Sulfur Chemistry

Chair: Eric R. Evitt (Catalytica Associates, Inc.)

Thomas B. Rauchfuss (University of Illinois at Urbana-Champaign)
"Studies on Organoruthenium and Organorhodium Sulfides"

Robert J. Angelici (Iowa State University)
"Reactions of Thiophene in Organometallic Complexes"

E.J.M. de Boer (Koninklijke/Shell-Laboratorium)
"Reactions of Rhenium Oxides with Alkynes"

Wednesday, June 27

Session 5: Materials, Solid State, Polymers

Chair: John P. Fackler Jr. (Texas A&M University)

Herbert D. Kaesz (University of California, Los Angeles)
"Deposition of Transition Metal Thin Films from Organometallic Precursors"

R.D. Miller (IBM)
"Soluble High Molecular Weight Polysilanes: Science and Applications"

Ralph G. Nuzzo (AT&T)
"The Molecular Self-Assembly of Organic Thiols on Au(111) and the Application of These Materials in Condensed Phase Studies"

One paper selected from poster submissions

Session 6: Lanthanides, Actinides, etc.

Chair: B. Duane Dombeck (Union Carbide Corporation)

Tobin J. Marks (Northwestern University)
"New Homogeneous Catalysis with Organo-Lanathanides"

James C. Stevens (Dow Chemical Company)
"Selective Propylene Dimerization Catalyzed by Organouranium Compounds"

F. G. N. Cloke (University of Sussex)
"High and Low Oxidation State Organo-f-element Compounds Derived from Bulky Aromatic Ligands"

Thursday, June 28

Session 7: Techniques, Theory

Chair: Cynthia M. Friend (Harvard University)

John D. Simon (University of Colorado)
"Picosecond Studies of the Photodissociation of Chromium Hexacarbonyl"

Sylvia T. Ceyer (Massachusetts Institute of Technology)
"The Activation of CH_4 and the Synthesis of C_6H_6 from CH_4 on Ni(III)"

Charles M. Lieber (Columbia University)
"Scanning Tunneling Microscopy Studies of the Structural and Electronic Effects of Metal Substitution in Inorganic Materials"

One paper selected from poster submissions

Session 8: Inspirations

Chair: Malcolm L.H. Green (University of Oxford)

John A. Osborn (University of Strasbourg)
"Catalysts for the Chemo- and Enantio- Selective Reduction of Imines"

Harry B. Gray (California Institute of Technology)
"Binuclear Iridium and Platinum Photochemistry and Photocatalysis"

Friday, June 29

Session 9: Methane, Alkane Chemistry

Chair: Patricia L. Watson (E.I. duPont de Nemours)

Bradford B. Wayland (University of Pennsylvania)
"C-H Bond Reactions of Rh(II) and Ir(II) Porphyrin Complexes"

D. Michael Heinekey (Yale University)
"Reactions of Methane with Rhenium Complexes"

Jay A. Labinger (California Institute of Technology)
"Practical Approaches to Alkane Activation: From Methane Mono-Oxygenase to Organometallic"

Wrap-up session

Gordon Conference on Organometallic Chemistry - 1990

Schedule

Mon AM

8:45 Chan's Intro
9:00 Berke
9:30 Disc
9:40 Flood
10:10 Disc
10:20 Break
10:35 Ellis
11:05 Disc
11:15 Poster Talk
11:35 Disc
11:40 Poster Talk
12:00 Disc

Tues AM

9:00 Jutzi
9:30 Disc
9:40 Sita
10:10 Disc
10:20 Break
10:35 Parkin
11:05 Disc
11:15 Poster Talk
11:35 Disc
11:40 Poster Talk
12:00 Disc

Wed AM

9:00 Kaesz
9:30 Disc
9:40 Miller
10:10 Disc
10:20 Break
10:35 Nu330
11:05 Disc
11:15 Poster Talk
11:35 Disc

Thurs AM

9:00 Simon
9:30 Disc
9:40 Ceyer
10:10 Disc
10:20 Break
10:35 Lieber
11:05 Disc
11:15 Poster Talk
11:35 Disc

Fri AM

9:00 Wayland
9:30 Disc
9:40 Heinekey
10:10 Disc
10:20 Break
10:35 Labinger
11:05 Disc
11:15 Wrap-Up

Mon PM

7:30 Ito
8:00 Disc
8:10 Cooper
8:40 Disc
8:50 Thomas
9:20 Disc

Tues PM

7:30 Rauchfuss
8:00 Disc
8:10 Angelici
8:40 Disc
8:50 de Boer
9:20 Disc

Wed PM

7:30 Marks
8:00 Disc
8:10 Stevens
8:40 Disc
8:50 Cloke
9:20 Disc

Thurs PM

7:30 Osborn
8:00 Disc
8:15 Gray
8:45 Disc
9:00 Bus Mtng

1990 Organometallic Gordon Research Conference Poster Schedule

Chair: Robert G. Bergman

Vice-Chair: Alfred P. Sattelberger

Session 1 - Monday, June 25

1. "Metal-Catalyzed Oxidation of Para-Substituted Phenolics. Approaches to Benzoquinones"
   Joseph J. Bozell
   Chemical Conversion Research Branch
   Solar Energy Research Institute

2. "Synthesis, Structure and Reactivity of Metallabenzenes"
   John R. Bleeke
   Department of Chemistry
   Washington University

3. "Some Applications of Diolate-Derived Chiral Auxiliaries in Organo-Transition Metal Chemistry"
   Joseph A. Heppert
   Department of Chemistry
   University of Kansas

4. "The Binding of Heteroaromatic Nitrogen Compounds with Cp^*Rh^{2+}, $CpRu^+$, and Cp^*Ru^+ Complexes and the Role of η^1, N-Bonded Complexes in the Regioselective Hydrogenation of the Nitrogen Ring"
   Richard Fish
   Department of Chemistry
   Lawrence Berkeley Laboratory

5. "A New Carbon-Hydrogen Bond Activation Reaction: 'Vinylic' Deprotonation of Cationic Rhenium Alkene Complexes"
   John A. Gladysz
   Department of Chemistry
   University of Utah

6. "Unprecedented Reactions Between Transition Metal Alkynyl Complexes and Nucleophiles: Synthesis and Crystal Structures of $Fe_2(CO)(\mu\text{-}CO)\{\mu\text{-}\sigma\text{:}\eta^3\text{-}C(O)C(R)\text{-}C[C(O)R']\}(\eta^5\text{-}C_5H_5)(\eta^5\text{-}C_5R''_5)$ (R = CH_3, $C{\equiv}CSiMe_3$; R' = n-Bu, CH_3, C_6H_5; R'' = H, CH_3)"
   Andrew Wong
   Department of Chemistry
   Occidental College

7. "Photooxidation of Metal Carbynes: Metal Radical Reactivity Versus Rearrangement of the Carbyne Ligands in the 17-Electron Intermediates"
   Lisa McElwee-White
   Department of Chemistry
   Stanford University

8. "Quantum Mechanical Exchange of Hydrides in Solution. Proton-Proton Exchange Couplings and Rotational Tunneling in Transition Metal Polyhydrides"
   Kurt W. Zilm
   Department of Chemistry
   Yale University

9. "Metal Alkyl Versus Metal Vinyl Insertion Reactions"
   Kenneth M. Doxsee
   Department of Chemistry
   University of Oregon

10. "Catalytic Hydroboration: The Study of a Model Iridium System"
    Joseph S. Merola
    Department of Chemistry
    Virginia Polytechnic Institute and State University

11. "Transformations of Organo-Iridium Phosphide Complexes"
    Michael D. Fryzuk
    Department of Chemistry
    University of British Columbia

12. "Synthesis, Structure and Reactivity of the Encapsulated Metallocenes $[(i\text{-}Pr)_4C_5H]_2Ca$ and $[(i\text{-}Pr)_4C_5H]_2Ba$"
    Timothy P. Hanusa
    Department of Chemistry
    Vanderbilt University

13. "Oxygen Containing Metallacycles From Ruthenium Enolates"
    Robert G. Bergman
    Department of Chemistry
    University of California, Berkeley

14. "Formation of 2,3-Butanedione in the Carbonylation of a Binuclear Rhodium Methyl Complex Under Extremely Mild Conditions"
    Richard Eisenberg
    Department of Chemistry
    University of Rochester

15. "Carbon-Oxygen Bond Activation. The Deoxygenation of Phenols by Oxygen Atom Transfer to CO"
    Clifford P. Kubiak
    Department of Chemistry
    Purdue University

16. "Mass Spectroscopic Studies of Large Gold Clusters"
John P. Fackler
Department of Chemistry
Texas A&M University

Session 2 - Tuesday, June, 26

17. "Asymmetric Synthesis and Applications of C2-Symmetrical Chiral Cyclopentadienyl Metal Complexes"
Ronald L. Halterman
Department of Chemistry
Boston University

18. "Characterization of the Cationic Radicals $\{H_3Ru_3[CX](CO)_{9-n}L_n\}^+$, where X = OMe, SEt or NMe_2; L = PPh_3, $AsPh_3$; n = 2 or 3"
Jerome B. Keister
Department of Chemistry
SUNY Buffalo

19. "Mechanism of Alkyl Migration in Iron-Manganese Alkoxy-Carbene Decomposition"
William H. Hersch
CUNY Queens College

20. "The First Electron-Transfer Catalyzed Ligand Substitution Which is Faster for an Even- Versus the Parent Odd-Electron System"
Rinaldo Poli
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21. "Rhodium-Catalyzed C-H Bond Functionalization. I. Thermal Aldehyde Decarbonylation (and Alkene Carbonylation?) II. Insertion of Acetylenes in Benzene C-H Bonds."
Alan S. Goldman
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Rutgers University

22. "Air-Sensitive Procatalysts for Ring-Opening Metathesis Polymerization of Norbornene-Type Monomers"
Larry F. Rhodes
Research and Development Center
BF Goodrich Company

23. "Synthesis of Tungsten Oxo and Alkylidene Complexes Using Organosilicon Reagents"
James M. Mayer
Department of Chemistry
University of Washinton

24. "Structure and Reactivity of Bimetallic Fischer Carbene Complexes"
M. G. Finn
Department of Chemistry
University of Virginia

25. "Hydrogen Atom Transfer Reactions of Transition Metal Hydrides. Kinetics and Mechanism of the Hydrogenation of α-Cyclopropyl Styrene"
R. Morris Bullock
Department of Chemistry
Brookhaven National Laboratory

26. "Evidence for an α-Agostic Transition State for Olefin Insertion"
John E. Bercaw
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California Institute of Technology

27. "Bimetallic Hydroformylation: A Dramatic Example of Homobimetallic Cooperativity"
George G. Stanley
Department of Chemistry
Louisiana State University

28. "Cleavage of Dialkylsiloxanes by Trimethylaluminum"
Andrew R. Barron
Department of Chemistry
Harvard University

29. "Transition Metal S_2O Complexes and Transition Metal-Mediated Thiosulfinate Ester Synthesis"
Mark E. Welker
Department of Chemistry
Wake Forest University

30. "C-S Bond Cleavage by Rhodium: A Homogeneous Model for Mechanistic Studies of the Hydrodesulfurization (HDS) Reaction"
William D. Jones
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University of Rochester

31. "Reactions of Mo/Co/S Clusters Relevant to HDS Catalysis"
M. David Curtis
Department of Chemistry
The University of Michigan

32. "Reactions of 1-Sila-3-Metallacyclobutane Complexes of Zirconium"
Jeffrey L. Petersen
Department of Chemistry
University of West Virginia

Session 3 - Wednesday, June 27

33. "C-C Bond Cleavage Reactions in Platinum Glycolate Complexes"
    Mark Andrews
    Department of Chemistry
    Brookhaven National Laboratory

34. "E-H Activation Chemistry: Marked Differences in Ir-H Reactivity in Complexes Resulting From B-H, C-H, N-H and O-H Oxidative Addition to Iridium"
    Joseph S. Merola
    Department of Chemistry
    Virginia Polytechnic Institute and State University

35. "Simple Molybdenum and Tungsten Carbyne Complexes"
    Joseph L. Templeton
    Department of Chemistry
    University of North Carolina

36. "Alkylation of Highly Reduced Rhenium Oxo Complexes $[Re(O)(RC{\equiv}CR)_2]Na$: Evidence for Radical and S_N2 Pathways"
    James M. Mayer
    Department of Chemistry
    University of Washington

37. "Molecular Analogs of Multiple Quantum Wells?"
    Paul J. Fagan
    Central Research and Development Department
    E. I. DuPont de Nemours and Company

38. "Chemical Vapor Deposition of Gold"
    Fred McCormick
    Corporate Research
    3M

39. "Molecular Precursors for Iridium Phosphide and the Synthesis of Small Semiconductor Clusters in Solution"
    Klaus H. Theopold
    Department of Chemistry
    Cornell University

40. "Organometallic Complexes with Sterically Distressed Ligands: The 1,2,3-tri-t-butylcyclopentadienyl Ligand"
    Russell P. Hughes
    Department of Chemistry
    Dartmouth University

41. "The Ladder Structure of $[Bu^tCH_2)_2TaN]_5{\cdot}NH_3{\cdot}C_7H_8$ and its Relationship to Cubic Tantalum Nitride"
    Peter T. Wolczanski

Department of Chemistry
Cornell University

42. "Surface Organometallic Chemistry"
Jeffrey Schwartz
Department of Chemistry
Princeton University

43. "$Cp^*_2V_2Br_4$ - A New Synthon in Mid-Valent Vanadium Chemistry. Preparation of of $Cp^*_2V_2(CH_3)_4$, a Complex with Four Bridging Methyl Groups"
Louis Messerle
Department of Chemistry
University of Iowa

44. "Cobalt Half-Sandwich Complexes with Intramolecular C-C Double Bond Coordination"
Jun Okuda
Anorganisch-Chemisches Institut
Technische Universität München

45. "Kinetics and Mechanism of Electron-Transfer from Pentacarbonylrhenate to Metal Carbonyl Dimers"
Jim D. Atwood
Department of Chemistry
SUNY Buffalo

46. "Acyclic Diene Metathesis Polymerization Chemistry"
James M. Boncella
Department of Chemistry
University of Florida

Session 4 - Thursday, June 28

47. "A Puzzle in Para-Hydrogen-Induced Polarization. Signal Enhancement in Asymmetric Hydrogenation by Addition of a Second Substrate"
Richard Eisenberg
Department of Chemistry
University of Rochester

48. Hydrogen Bonding Properties of Transition Metal Fluorides"
Thomas Richmond
Department of Chemistry
University of Utah

49. "Metal Tellurates: Synthesis, Structure and Reactivity"
John Arnold
Department of Chemistry
University of California, Berkeley

50. "Interaction of Aldehydes with Monomeric Aluminum Complexes"
Andrew Barron
Department of Chemistry
Harvard University

51. "Unsaturated Mixed-Metal Complexes: Synthesis, Structures and Reactivity"
Michael J. Chetcuti
Department of Chemistry
University of Notre Dame

52. "Rearrangement and C-X Bond Formation Using Nickel Complexes"
Allan R. Pinhas
Department of Chemistry
University of Cincinnati

53. "Electrocyclic Reactions of $(C_5H_5)Fe$(pentadienoyl) Complexes"
Neil T. Allison
Department of Chemistry
University of Arkansas

54. "IR Analysis of Anion Metathesis. Lability of Low Valent d^6 Complexes"
Norris W. Hoffman
Department of Chemistry
University of South Alabama

55. "Reaction of Cyclopropylcarbene-Tungsten Complexes with Alkynes: A New Seven-Membered Ring Synthesis"
James W. Herndon
Department of Chemistry
University of Maryland

56. "Structural Data from Solid -State Deuterium NMR Spectroscopy"
Leslie Butler
Department of Chemistry
Louisiana State University

57. "Neutral Dihydrogen Complexes of Iridium"
Craig Jensen
Department of Chemistry
University of Hawaii

GORDON RESEARCH CONFERENCES

ORGANOMETALLIC CHEMISTRY

June 25-29, 1990
Salve Regina College, Newport, RI

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Monday, July 30, 1990

Professor Robert G. Bergman
Department of Chemistry
University of California, Berkeley
Berkeley, CA 94720

Dear Bob:

The purpose of this note is to congratulate you on the success of this year's Organometallic Chemistry Gordon Conference and to thank you for putting together such a fine program. I greatly appreciate having had the opportunity to participate.

Sincerely,

Nancy

Nancy M. Doherty
Associate Professor of Chemistry

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DEPARTMENT OF CHEMISTRY

12 Oxford Street
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U.S.A.

July 9, 1990

Professor Robert G. Bergman
University of California/Berkeley
Department of Chemistry
Berkeley, CA 94720

Dear Bob:

Many thanks for organizing a great Conference! It was good seeing you, and I thank you for all your work (including making arrangements for last-minute attendees). I found the meeting truly stimulating, and appreciate the opportunity to participate.

When you have a chance, I'd appreciate your hunting up and sending those papers on oxymetallocycles you told me about.

Best regards,

Cynthia M. Friend
Professor of Chemistry

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Tuesday, July 3, 1990

Professor Robert G. Bergman
Department of Chemistry
University of California — Berkeley
Berkeley, CA 94720

Dear Bob:

Enclosed is a preprint of our paper on hydrogen atom transfer reactions that you asked about.

I enjoyed seeing you at the Gordon Conference. I found the meeting to be very stimulating, and I thank you for all of your efforts as chairman of the conference.

Best regards.

Sincerely,

Morris

R. Morris Bullock

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DEPARTMENT OF CHEMISTRY

July 12, 1990

Professor Robert G. Bergman
Department of Chemistry
University of California
Berkeley, California 94720

Dear Bob,

Thank you for sending me a copy of your manuscript for the Journal of Organometallic Chemistry. It presents a nice, personal overview of your route into the C-H activation work. I found only one item that you may want to check on page 4, line 10. I believe that Rausch's compound was $CpIr(CO)_2$, not $Cp^*Ir(CO)_2$. Otherwise, the paper looks fine.

Let me also take this opportunity to congratulate you on doing a fine job with the Gordon Conference. Everything went very smoothly, and I thought that the program was a huge success. See you soon.

Sincerely,

Bill

WDJ/acb

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July 11, 1990

Professor Robert G. Bergman
Department of Chemistry
University of California, Berkeley
Berkeley, California 94720

Dear Bob:

Thanks for the copy of your retrospective article to be submitted to the *Journal of Organometallic Chemistry*. It made great reading.

I appreciate your kind references to my research group and me. I see nothing that needs modifying.

Thanks again for looking after me in May. Once again, thanks for organizing a great Gordon Conference. Have a good summer.

Sincerely,

John

John E. Bercaw

JEB:pa

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July 6, 1990

Professor Robert G. Bergman
Department of Chemistry
University of California at Berkely
Berkely, California 94720

Dear Bob,

First, let me say that I found this years Organometallic Chemistry Gordon Conference to be the best one that I have attended. There is no single area that I can point to as the one that makes me feel that way, but I found that just in every area: quality of talks, organization, poster sessions, overall atmosphere, the conference was superb.

Thanks for your interest in our work here at VPI. I am sending you several things to inform you of our recent results. The first is a preprint of a communication that has been accepted by *Organometallics* on the B-H/Ir chemistry. The second is a preprint of a communication that has been accepted by *Inorganic Chemistry* on the N-H/Ir chemistry. Finally, I am also sending copies of the two posters I presented at the conference. Any comments and suggestions that you might have would be greatly appreciated.

Thanks again for a great Gordon Conference and I look forward to future discussions about iridium chemistry.

Regards,

Joe

Joe Merola