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FINAL REPORT

AFOSR GRANT NO: 78-3553

AFOSR-TR- 89-0499

GRANT TITLE: Gordon Research Conference on Organometallic Chemistry

GRANTEE: Gordon Research Conferences
Pastore Chemical Laboratories
University of Rhode Island
Kingston, Rhode Island 02881

PRINCIPAL INVESTIGATOR: P. M. Treichel
(Conference Chairman)
Department of Chemistry
University of Wisconsin
Madison, WI 53706

The Gordon Research Conference on Organometallic Chemistry was held at Andover Academy, New Hampton, N.H., August 13-19, 1978. In attendance were 149 persons, whose names appear on the attached Registration List. This is rather a large number of attendees for Gordon Conference; the previous conferences on Organometallic Chemistry had 117 attendees which is a more typical number for most conferences. The large interest in this specific conference is, we feel, a response to the strong program. While the presence of a large number of participants could have detracted from the informality of the conference this did not happen because the conference succeeded in involving a very large number of people in the program.

As is customary at Gordon Research Conferences, the major portion of the program contained a series of primary speakers (Program attached). Thirteen such sessions spanned three general areas: 1) Carbon Ligands Including Reactions of Coordinated CO (Schrock, MIT; Bercaw, Cal. Tech; Pruett, Union Carbide), 2) Main Group Chemistry (Reich, U. of Wisconsin; Normant, U. of Paris, France; Ashby, Georgia Tech; Eisch, SUNY-Binghamton, and Halasa, Firestone) and 3) Inorganic and Organic Chemistry of Complexes of the Platinum Group Metals (Stone, Bristol, England; Stille, Colorado State U.; Maitlis, Sheffield, England; Heck, U. of Delaware; and Green, Bristol, England). In constructing this program effort was made to draw the most active people from the U.S. and abroad to participate in this conference. In addition, we were pleased to be able to integrate industrial speakers into the program. This had been our intention since a substantial fraction of the conference attendees are from industrial laboratories. Of course this grant from the AFOSR was instrumental in allowing us to get the foreign speakers who participated and greatly strengthened the program.

There were ten short research papers interspersed in the program. The persons enlisted in this part of the program may be identified as some of the more outstanding young organometallic chemists. In addition we solicited and received twenty-eight papers for two poster sessions which were held in the late afternoons during the week. These sessions generated a lot of interest as they generally were on recent unpublished work, and often were on topics outside of the topics chosen for the major addresses.

In all over 70 persons participated as speakers, as discussion leaders, or as contributors in the Poster Sessions. This means a high fraction of attendees were active participants in the program, which contributed to the favorable overall atmosphere of the conference.

Paul W. Keechel

Signature
Principal Investigator
November 16, 1978



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UNANNOUNCED

PROGRAM

GORDON RESEARCH CONFERENCES

ORGANOMETALLIC CHEMISTRY

August 14-18, 1978

Proctor Academy, Andover, New Hampshire

P. M. Treichel, Chairman

H. D. Kaesz, Vice Chairman

Monday, August 14

- | | |
|--|--|
| | J. Labinger, Discussion Leader
University of Notre Dame |
| Mono and Bis Alkylidene Complexes
of Niobium and Tantalum, and
Reactions Involving Olefins | R. R. Schrock
M.I.T. |
| Homogeneous Activation of
Carbon Monoxide | G. Doyle, Discussion Leader
Exxon Research |
| | J. E. Bercaw
California Inst. of Technol |
| Catalysis of Carbon Monoxide-
Hydrogen Reactions | J. Gladysz, Discussion Leader
U.C.L.A. |
| Short Papers | R. Pruett
Union Carbide Corporation |
| Reactions of the Cationic
Carbene Complex $(\eta^5\text{-C}_5\text{H}_5)_2\text{Fe}=\text{C}(\text{R})_2^+$
with Alkenes and Alkynes | H. Alper, Session Chairman
U. of Ottawa |
| Molybdenum Perfluorocarbene
Complexes | H. Brookhart
U. of North Carolina |
| Reduction of Coordinated CO by
Trialkylborohydrides; Synthesis
of Transition Metal Formyls,
Hydroxyalkyls, and Anions | D. Reger
U. of South Carolina |
| | J. Gladysz |

Tuesday, August 15

Selenium and Silicon in Organic
Synthesis

R. Larock, Discussion Leader
Iowa State University

H. J. Reich
U. of Wisconsin - Madison

G. Posner, Discussion Leader
Johns Hopkins University

Recent Developments in the
Catalytic or Stoichiometric Use
of Copper Salts in Organic
Synthesis

J. F. Normant
University of Paris

D. Bergbreiter, Discussion L
Texas A & M

Concerning the Question of
Distinguishing Polar from Single
Electron Transfer Reactions in
Main Group Metal Chemistry

E. C. Ashby
Georgia Tech.

Short Paper

J. Norton, Session Chairman
Princeton University

A Short, Simple, Stereocontrolled
Steroid Total Synthesis Using
Organocopper Reagents

G. Posner
Johns Hopkins University

Wednesday, August 16

Organometallic Metalloacycles in
Bonding and Mechanistic Studies

R. P. Hughes, Discussion Le
Dartmouth College

J. J. Eisch
SUNY - Binghamton

H. Richey, Discussion Leader
Penn State University

Organolithium Catalysis of Olefin
and Diene Polymerization: A
Fruitful Area for Research

A. Halasa
Firestone, Akron Ohio

Short Papers

R. Keiter, Session Chairman

Hydrogen Transfer in Diene
Iron tris-Phosphite Complexes

S. Ittel
E. I. duPont de Nemours & Co

Yet Another Unexpected Radical
Pathway in an Organometallic
Reaction

J. Labinger
U. of Notre Dame

K. Barnett, Discussion Leader
U. of Missouri, St. Louis

Synthesis via Ligand Free
Platinum Complexes

F. G. A. Stone
The University, Bristol, Engl:

Thursday, August 17

T. Whitesides, Discussion Leader
Eastman Kodak Co.

Transition Metal Catalyzed Organic
Syntheses

J. K. Stille
Colorado State University

D. Reger, Discussion Leader
U. of South Carolina

New Types of Homogeneous Catalysts
and the Hydrogenation of Aromatics

P. M. Maitlis
The University, Sheffield

Short Papers

D. Singleton, Session Chairman
Shell Development Company

New Applications of Organomercury,
-palladium, and -rhodium Compounds
in Organic Synthesis

R. Larock

Palladium Catalyzed Allylic Alkylation
of Olefins

L. Hegedus
Colorado State University

An Improved Catalyst for Methylene
Lactone Synthesis as a Result of
Mechanistic Study

J. Norton
Princeton University

Calorimetric Studies of Reactions
of Rhodium or Iridium Complexes

D. Blake
U. of Texas, Arlington

Friday, August 18

L. Hegedus, Discussion Leader
Colorado State University

Palladium Catalyzed Reactions of
Vinyl Halides with Amines
and Olefins

D. P. Hook

S. Ittel, Discussion Leader

Reactions of Co-ordinated
Alkenes and Acetylenes

M. Green
The University, Bristol
England

1973 GORDON RESEARCH CONFERENCE ON ORGANOMETALLIC CHEMISTRY

Schedule for Poster Displays

(Authors of poster displays are requested to be available in the vicinity of their display to answer questions from 5:15 to 5:45 p.m. on the days that their display is scheduled.)

Monday and Tuesday, August 14,15 (Papers No. 1 through 13)

1. R.M. Laine, D.W. Thomas, L.W. Cary and S.E. Buttrill, SRI International "Applications of the Water-Gas Shift Reaction. Catalytic Activations of Tertiary Amines During Catalysis of the Water-Gas Shift Reaction."
2. J.W. Suggs, Bell Labs "Catalytic Hydroacylation."
3. P.R. Jones and J.G. Shelnut, University of New Hampshire "para-Products from meta-Arylcadmium Reagents: A cine-Substitution"
4. A.J. Schultz*, J.M. Williams*, G.D. Stucky⁺, S.D. Ittel[‡] and R.R. Schrock[‡],
*Argonne National Laboratory, ⁺University of Illinois, [‡]E.I. duPont, [‡]Massachusetts Institute of Technology
"Structural Models for C-H Bond Scission. Neutron Diffraction Studies of an Aliphatic C-H...Fe Interaction and an Unusual Ta-Alkylidene Complex."
5. V.L. Coedken, P. DeHaven and L. Warren, Florida State University "Binuclear Rhodium(II) Complexes of the Tetramethyltetraazadibenzo-[14]annulene Ligand, C₂₂H₂₂N₄²⁻: Crystal Structure and Chemical Reactivity."
6. K.W. Barnett*, D.J. Blumert, T.L. Brown[‡], *University of Missouri St. Louis, [‡]University of Illinois-Urbana
"Trimethylamine N-Oxide Promoted Substitution in Metal Carbonyls."
7. L.H. Pignolet and D. Doughty, University of Minnesota
"Catalytic Decarbonylation of Aldehydes Using Rh(I) Complexes of Chelating Diphosphine Ligands."
8. V.P. Kirkov and R.G. Wall, Chevron Research Company
"Catalytic Rearrangement of Vinyloxiranes to 2,5-Dihydrofuranes."
9. P. McArdle and T. Higgins, University College Galway (Ireland)
"Selective Isomerization of 4-Vinylcyclohexene by Iron Carbonyl Complexes."
10. R.H. Crabtree*, D.F. Chodosh[‡], H. Felkin[‡] and G.E. Morris[‡],
*Yale University, [‡]ICSN, CNRS (Gif-sur-Yvette, France)
"A Trinuclear Iridium Cluster Complex Containing a Tricoordinate Hydrogen Atom."
11. R.J. McKinney and D.A. Pensak, Central Research and Development Du Pont
"Application of Molecular Orbital Theory to Transition Metal Complex: Calculation of the Change in Enthalpy for Some Dissociative Processes"

12. R.F. Lockwood, H.D. Hodes, and K.M. Nicholas, Boston College
"Cobalt-Complexed Propargyl Cations as Intermediates in Organic Synthesis."
13. A. Eisenstadt, Tel-Aviv University
"A Novel σ -Assisted π -Organotransition Metal Cation: The Protonation of 1-substituted-2,2,7,7-tetramethyl-3,5-cycloheptadiene Irontricarbonyl Complexes."
- .. . Wednesday and Thursday, August 16, 17. (Papers Nos. 14 through
14. R.D. Kerber and T. Chiang, State University of New York at Stony Brook
" η -(Triphenylcyclopropenyl) tricarbonyl cobalt."
15. P.D. Frisch and G.P. Khare, University of Maine at Orono
"Oxidative Addition Reactions of $\text{RhCl}(\text{CO})(\text{PR}_3)_3$ and the Cyclopropenyl Ions C_3R_3^+ , R=Ph, Cl."
16. I. Arai, G.D. Daves, Jr., Oregon Graduate Center
"Palladium-Catalyzed Arylation of Enol Ethers and Esters."
17. J.A.K. Howard, J.M. Bassett, G.K. Barker, F.G.A. Stone, and M. Green, University of Bristol.
"Structural Aspects of Some New Metal Isocyanide Complexes."
18. L.J. Farrugia, J.L. Spencer and F.G.A. Stone, University of Bristol
"Syntheses of Reactive Mixed-Metal Clusters."
19. T.A. George, G.E. Dossard, D.C. Busby, S.D.A. Iske, Jr., and C. Winters, University of Nebraska-Lincoln
"Chemical and Physical Properties of Alkyldiazenido and Alkylhydrazido Derivatives of Molybdenum."
20. D.F. Marten, University of Oklahoma
"Approaches to Unsaturated Lactone Metal Complexes: Propargyl and Allenyl Alcohols."
21. D. Touchard, H. Le Bozec, A. Gorgues and P. Dixneuf, Université de Rennes
"Activation Towards Electrophiles of Carbon Disulfide and Heteroatom by Coordination."
22. W.L. Waltz, O. Hackelberg, L.M. Dorfman and A. Wojcicki, Ohio State University
"Pulse Radiolysis Studies of Manganese Carbonyls."
23. P.H. Treichel and W.K. Wong, University of Wisconsin
"Reactions of Coordinated Phosphines: Synthesis of Chelating Phosphines."
24. Ch. Elschenbroich, J. Heck, R. Möckel and U. Zenneck, Philipps Universität Marburg
"Novel Bis(η -Arene)Chromium Complexes of Condensed Arenes, Diphenyl and [2.2]Paracyclophane."

25. J.S. Bradley, G.D. Ansell and E.W. Hill, Exxon Research and Engineering Co.

"Recent Work in Ruthenium Carbide Cluster Chemistry."

26. G.S. Lewandos, Central Michigan University

"Silver(I) Catalyzed Deuterium Exchange of Terminal Acetylenes."

27. H.D. Kaesz and G.D. Jarvinen, University of California, Los Angeles

"Rate Study of the Cyclometalation of cis-Methyl(tribenzylphosphine)-
(tetracarbonyl)manganese."

28. F. Hares, S.E. Jacobson, and R. Tang, Corporate Research, Allied Chemical

"Oxidation of cyclic ketones by Hydrogen Peroxide Catalyzed by Group VI Metal Peroxo Complexes."

GORDON RESEARCH CONFERENCES

ORGANOMETALLIC CHEMISTRY

August 14-19, 1973
Proctor Academy
Andover, New Hampshire

Registration List

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CARR - Carr	I - Infirmary	MO - Morton
G - Gulick	IVES - Ives	T - Thoreau
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	MA - Mackenzie	D - Davis
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