

# CURRICULUM VITAE

**Robert Bau**

Born: February 10, 1944, Shanghai, China (naturalized U.S. citizen, 1974)

Education: B.Sc., University of Hong Kong, June, 1964  
Ph.D., University of California at Los Angeles, March, 1968  
Postdoctoral Research Fellow, Harvard University, 1968-69

Positions Held Since Ph.D. Degree:

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1974-77 Associate Professor of Chemistry, University of Southern California  
1969-74 Assistant Professor of Chemistry, University of Southern California

Awards and Honors:

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Recipient of USC Associates Award for Excellence in Teaching, 1974  
Recipient of USC Associates Award for Excellence in Research, 1979  
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Research Interests:

X-ray and Neutron Diffraction Studies of Covalent Metal Hydride Compounds

Neutron Diffraction Studies on Molecules Having Chiral Methylene Groups (Molecules of the type CHDRR')

Neutron Diffraction Studies of Small Proteins

## PUBLICATION LIST

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1. "The Crystal Structure of  $\text{HRe}_2\text{Mn}(\text{CO})_{14}$ . A Neutral, 'Electron Deficient', Polynuclear Carbonyl Hydride", H.D. Kaesz, R. Bau, and M.R. Churchill, *J. Am. Chem. Soc.*, **89**, 2775 (1967).
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5. "On the Interaction of CO Stretching Modes and Metal Carbonyls: Effect on Intensity", P.S. Braterman, R. Bau and H.D. Kaesz, *Inorg. Chem.*, **6**, 2097 (1967).
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10. "Preparation and Structure of  $\text{Co}_4(\text{NO})_8(\text{NO}_2)_2(\text{N}_2\text{O}_2)$ . A Novel Complex Containing a Quadridentate Hyponitrite Group", R. Bau, I.H. Sabherwal and A.B. Burg, *J. Am. Chem. Soc.*, **93**, 4926 (1971).

11. "The Molecular Geometry of tris-(diphenylacetylene) Tungsten Monocarbonyl", R.M. Laine, R.E. Moriarty and R. Bau, *J. Am. Chem. Soc.*, **94**, 1402 (1972).
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13. "The Crystal Structure of a Rearrangement Product of a Perchlorinated Cage Amine", R. Bau and K.V. Scherer, *Tetrahedron Letters*, 2081 (1972).
14. "The Structure of tris-(Methyl Vinyl Ketone) Tungsten", R.E. Moriarty, R.D. Ernst, and R. Bau, *Chem. Commun*, 1242 (1972).
15. "Crystal Structure of the Biscarborane Complex  $\text{Co}[\text{B}_{10}\text{C}_2\text{H}_{10}]_2^{2-}$ ", R. A. Love and R. Bau, *J. Am. Chem. Soc.*, **94**, 8274 (1972).
16. "Absolute Configuration of a 1,2-Disubstituted Ferrocene Derivative with Planar and Central Elements of Chirality and the Mechanism of the Stereoselective Metallations of Optically Active  $\alpha$ -Ferrocenyl Tertiary Amines", L.F. Battelle, R. Bau, G.W. Gokel, R.T. Oyakawa and I. Ugi, *J. Am. Chem. Soc.*, **95**, 482 (1973).
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18. "Location of the Hydrogen Atoms,  $\text{H}_3\text{Mn}_3(\text{CO})_{12}$ : A Crystal Structure Determination", S.W. Kirtley, J.P. Olsen and R. Bau, *J. Am. Chem. Soc.*, **95**, 4532 (1973).
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24. "X-ray and Neutron Diffraction Studies on  $\text{HW}_2(\text{CO})_9(\text{NO})$ : Evidence for a Closed Three-Center Metal-Hydrogen-Metal Bond", J.P. Olsen, T.F. Koetzle, S.W. Kirtley, M. Andrews, D.L. Tipton and R Bau, *J. Am. Chem. Soc.*, **96**, 6621 (1974).
25. "The Linear  $[(\text{Ph}_3\text{P})_2\text{N}]^+$  Cation: Crystal Structure of  $[(\text{Ph}_3\text{P})_2\text{N}]^+[\text{V}(\text{CO})_6]^-$ ", R.D. Wilson and R. Bau. *J. Am Chem. Soc.*, **96**, 7601 (1974).
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31. "The Crystal Structure of  $\text{Na}_2\text{Fe}(\text{CO})_4^{2-}\cdot 1.5(\text{dioxane})$ : Distortion of the  $[\text{Fe}(\text{CO})_4]^{2-}$  Anion in the Solid State", H.B. Chin and R. Bau, *J. Am. Chem. Soc.*, **98**, 2434 (1976).
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48. "Crystallographic Investigations on Polyhydride Metal Complexes", R. Bau, W.E. Carroll, D.W. Hart, R.G. Teller and T.F. Koetzle, *Advances in Chemistry Series*, **167**, 73 (1978).
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60. "Synthesis and X-ray Crystallographic Structure Determination of the Acetylene Complex  $(\eta^5\text{-C}_5\text{H}_5)_2\text{W}_2(\text{CO})_4(\text{C}_2\text{H}_2)$ ", D.S. Ginley, C.R. Bock, M.S. Wrighton, B.E. Fischer and R. Bau, *J. Organometallic Chem.*, **157**, 41 (1978).
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68. "X-ray Structural Studies of Metal-Nucleoside and Metal-Nucleotide Complexes", R.W. Gellert and R. Bau, in "Metal Ions in Biological Systems", Helmut Sigel, ed., Vol 8, Marcel Dekker, Inc., New York (1979), page 1.
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- Ion, and  $[\text{Me}_4\text{N}]^+\{\text{Mo}_3(\text{CO})_6(\text{NO})_3(\mu_2\text{-OCH}_3)\}^-$ , S.W. Kirtley, J.P. Chanton, R.A. Love, D.L. Tipton, T.N. Sorrell and R. Bau, *J. Am. Chem. Soc.*, **102**, 3451 (1980).
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  74. "Crystallographic Studies of Transition Metal Hydride Complexes", R.G. Teller and R. Bau, *Structure and Bonding*, **44**, 1 (1981).
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238. "Neutron crystallographic study on rubredoxin from *Pyrococcus furiosus* by BIX-3, a single-crystal diffractometer for biomacromolecules", by Kurihara, Kazuo; Tanaka, Ichiro; Chatake, Toshiyuki; Adams, Michael W. W.; Jenney, Francis E., Jr.; Moiseeva, Natalia; Bau, Robert; Niimura, Nobuo, *Proceedings of the National Academy of Sciences of the United States of America*, **101**, 11215-11220 (2004).
239. "A neutron crystallographic analysis of a rubredoxin mutant at 1.6 Å resolution", by Toshiyuki Chatake, Kazuo Kurihara, Ichiro Tanaka, Irina Tsyba, Robert Bau, Francis E. Jenney Jr., Michael W. W. Adams and Nobuo Niimura, *Acta Crystallographica, Section D: Biological Crystallography*, **D60**, 1364-1373 (2004)
240. "Neutron diffraction studies on rubredoxin from *Pyrococcus furiosus*", by Robert Bau, *Journal of Synchrotron Radiation*, **11**, 76-79 (2004)
241. "W3Y single mutant of rubredoxin from *Pyrococcus furiosus*: a preliminary time-of-flight neutron study", by Li, Xinmin; Langan, Paul; Bau, Robert; Tsyba, Irina; Jenney, Francis E., Jr.; Adams, Michael W. W.; and Schoenborn, Benno P., *Acta Crystallographica, Section D: Biological Crystallography*, **D60**, 200-202, (2004)
242. "Neutron and X-ray Diffraction Studies and DFT Calculations of Asymmetric Bis(silyl) Niobocene Hydrides", by Dorogov, Konstantin Yu.; Dumont, Elise; Ho, Nam-Nhat; Churakov, Andrei V.; Kuzmina, Lyudmila G.; Poblet, Josep-Maria; Schultz, Arthur J.; Howard, Judith A. K.; Bau, Robert; Lledos, Agusti; Nikonov, Georgii I., *Organometallics*, **23**, 2845-2847 (2004)
243. "Organometallic Complexes as Hole-Transporting Materials in Organic Light-

- Emitting Diodes", by Ren, Xiaofan; Alleyne, Bert D.; Djurovich, Peter I.; Adachi, Chihaya; Tsyba, Irina; Bau, Robert; Thompson, Mark E., *Inorganic Chemistry*, **43**, 1697-1707 (2004)
244. "Synthesis and characterization of cyclometalated Ir(III) complexes with pyrazolyl ancillary ligands", by Li, Jian; Djurovich, Peter I.; Alleyne, Bert D.; Tsyba, Irina; Ho, Nam N.; Bau, Robert; Thompson, Mark E., *Polyhedron*, **23**, 419-428 (2004)
245. "Synthesis and X-ray and Neutron Structures of  $Zr\{(\mu-H)_2BC_8H_{14}\}_4$ ", by Ding, Errun; Du, Bin; Meyers, Edward A.; Shore, Sheldon G.; Yousufuddin, Muhammed; Bau, Robert; McIntyre, Garry J. *Inorganic Chemistry*, **44**, 2459-2464, (2005)
246. "A neutron diffraction study of  $[OsClH_3(PPh_3)_3]$ : A complex containing a highly "stretched" dihydrogen ligand, by Yousufuddin, Muhammed; Wen, Ting Bin; Mason, Sax A.; McIntyre, Garry J.; Jia, Guochen; Bau, Robert, *Angewandte Chemie Internat. Edit.*, **44**, 7227-7230, (2005)
247. "Recent results on hydrogen and hydration in biology studied by neutron macromolecular crystallography", by Niimura, N.; Arai, S.; Kurihara, K.; Chatake, T.; Tanaka, I.; Bau, R.. *Cellular and Molecular Life Sciences*, **63**, 285-300, (2006).
248. "Are the  $[NF_4]^+$  Cations in  $[NF_4]^+[BF_4]^-$  Really Nontetrahedral?" by Haiges, Ralf; Gerken, Michael; Iuga, Adriana; Bau, Robert; Christe, Karl O. *Inorganic Chemistry*, **45**, 7981-7984 (2006).
249. "A preliminary time-of-flight neutron diffraction study of a site-specific mutant (W3Y) of rubredoxin from *Pyrococcus furiosus*", by Li, Xinmin; Langan, Paul; Tsyba, Irina; Bau, Robert; Adams, Michael W. W.; Jenney, Francis E., Jr.; and Schoenborn, Benno P. *American Crystallographic Association Transactions*, **38**, (2006).
250. "Intramolecular Arene Epoxidation by Phosphadioxiranes", by Zhang, Dong; Gao, Ruomei; Afzal, Shabana; Vargas, Mario; Sharma, Shantanu; McCurdy, Alison; Yousufuddin, Muhammed; Stewart, Timothy; Bau, Robert; and Selke, Matthias. *Organic Letters*, **8**, 5125-5128 (2006).
251. "Syntheses and Structures of Asymmetric Bis(silyl) Niobocene Hydrides", by Dorogov, Konstantin; Yousufuddin, Muhammed; Ho, Nam-Nhat; Churakov, Andrei V.; Kuzmina, Lyudmila G.; Schultz, Arthur J.; Mason, Sax A.; Howard, Judith A. K.; Lemenovskii, Dmitry A.; Bau, Robert; Nikonov, Georgii I. *Inorganic Chemistry*, **46**, 147-160. (2007).
252. "Highly efficient, near-infrared electrophosphorescence from a Pt-metalloporphyrin complex", by Borek, Carsten; Hanson, Kenneth; Djurovich, Peter I.; Thompson, Mark E.; Aznavour, Kristen; Bau, Robert; Sun, Yiru; Forrest,



Stephen R.; Brooks, Jason; Michalski, Lech; Brown, Julie. *Angewandte Chemie, International Edition*, **46**, 1109-1112 (2007).

253. "Cyclometalated iridium and platinum complexes with noninnocent ligands", by Hirani, Bhavna; Li, Jian; Djurovich, Peter I.; Yousufuddin, Muhammed; Oxgaard, Jonas; Persson, Petter; Wilson, Scott R.; Bau, Robert; Goddard, William A., III; Thompson, Mark E. *Inorganic Chemistry*, **46**, 3865-3875 (2007).
254. "Neutron diffraction studies on a system with a 4-coordinate hydrogen atom in an yttrium cluster", by Yousufuddin, Muhammed; Baldamus, Jens; Tardif, Olivier; Hou, Zhaomin; Mason, Sax A.; McIntyre, Garry J.; Bau, Robert., *Physica B: Condensed Matter*, **385-386**, 231-233 (2007).
255. "Neutron Studies of Stretched Dihydrogen Complexes: A Model for a 'Reaction Pathway' of Oxidative Addition of a Metal Atom to an H-H Bond", by Aznavour, Kristen and Bau, Robert., *Chemtracts*, in press (2007).
256. "Single Crystal Neutron Diffraction", by Muhammed Yousufuddin and Robert Bau, in *"Encyclopedia of Inorganic Chemistry"*, R. Scott, ed., in press (2007).

## SEMINARS PRESENTED AT MAJOR INSTITUTIONS

November 23, 1971	University of California, Los Angeles
April 17, 1972	University of Southern California
April 28, 1972	University of California, Berkeley
October 25, 1972	University of California, Santa Barbara
December 5, 1972	California Institute of Technology
August 22, 1973	Brookhaven National Laboratory
October 9, 1973	California State University, Los Angeles
October 15, 1974	University of California, Los Angeles
November 11, 1974	University of Rochester
November 15, 1974	Columbia University
November 18, 1974	Massachusetts Institute of Technology
November 20, 1974	West Virginia University
November 21, 1974	Ohio State University
November 26, 1974	Yale University
November 27, 1974	Bell Laboratories
October 10, 1975	University of California, Berkeley
March 25, 1976	Cornell University
April 15, 1976	Northwestern University
April 16, 1976	University of Wisconsin
April 30, 1976	University of Southern California
August 16, 1976	Max Planck Institute, Mulheim (Germany)
October 21, 1976	Colorado State University
November 4, 1976	Cambridge University
November 8, 1976	University of Sussex
November 10, 1976	University of Exeter
November 12, 1976	University of Manchester (UMIST)
November 15, 1976	University of Bristol
November 17, 1976	Oxford University
November 19, 1976	University of London (Imperial College)
November 22, 1976	University of Sheffield
November 23, 1976	University of Leeds
November 25, 1976	University of Newcastle
November 26, 1976	University of Edinburgh
November 29, 1976	University of East Anglia
December 6, 1976	California Institute of Technology
October 12, 1977	University of Hong Kong
October 20, 1977	Tokyo University
October 21, 1977	Chiba University
October 24, 1977	Nagoya University
October 26, 1977	Kyoto University
October 28, 1977	Osaka University
October 31, 1977	Nagoya City University
November 2, 1977	University of Hawaii
April 10, 1978	University of Regensburg, Germany
April 11, 1978	University of Munich, Germany

April 14, 1978	Centre d'Etudes Nucleaires de Grenoble and Institute Laue-Langevin, Genoble, France
April 17, 1978	University of Basel, Switzerland
April 18 1978	University of Swiss Federal Institute of Technology (ETH) Zurich, Switzerland
April 21, 1978	University of of Milan, Italy
May 1, 1978	University of Würzburg, Germany
May 3, 1978	University of Kaiserslautern, Germanay
May 5, 1978	University of Strasbourg, France
June 1, 1978	University of California, Davis
September 18, 1978	Brookhaven National Laboratory, New York
September 21, 1978	Harvard University
September 28, 1978	Pomona College
October 6, 1978	University of California, Berkeley
October 30, 1978	University of Southern California
February 28, 1979	University of California, Riverside
April 17, 1979	Stanford University
April 10, 1978	University of Chicago
April 10, 1978	University of Nebraska
October 19, 1979	Iowa State University
October 22, 1979	University of Iowa
October 24, 1979	University of Minnesota
October 25, 1979	University of Illinois
November 29, 1979	University of Utah (Distinguished Lecturer Series)
January 9, 1980	University of California, Los Angeles
May 5, 1980	University of Athens, Greece
May 7, 1980	University of Ioannina, Greece
May 9, 1980	Democritos Institute for Nuclear Research, Athens, Greece
May 12, 1980	University of Erlangen-Nürnberg, Germany
May 13, 1980	Technical University of Munich, Germany (Seminar presented to the German Chemical Society)
May 15, 1980	University of Marburg, Germany
May 16, 1980	Max-Planck Institute, Mulheim, Germany
May 19, 1980	University of Leiden, Hilland
October 7, 1980	University of British Columbia, Vancouver, B.C.
October 9, 1980	University of Victoria, Victoria, B.C.
October 10, 1980	Simon Fraser University , Burnaby, B.C.
November 17, 1980	University of California, Irvine
June 29, 1981	Chinese University of Hong Kong, Hong Kong
July 27, 1981	University of Glasgow, Scotland, U,K,
June 11, 1982	Chinese University of Hong Kong
September 2, 1982	University of Texas, Austin
December 31, 1982	University of Madras, India
January 25, 1983	Indian Institute of Science, Bangalore, India
January 25, 1983	University of Bangalore, India
October 6, 1983	University of Arizona, Tucson, Arizona

November 11, 1983	University of Southern California
November 22, 1983	University of California, Santa Barbara
March 28, 1984	University of Utah (Distinguished Lecture Series)
April 26, 1984	University of Athens, Greece
October 16, 1984	California State University at Los Angeles
January 31, 1985	University of Munich, Germany
February 4, 1985	Technical University of Munich, Germany
April 22, 1985	University of Copenhagen, Denmark
April 24, 1985	University of Hamburg, Germany
April 29, 1985	University of Milan, Italy
May 3, 1985	University of Zaragoza, Spain
May 28, 1985	University of Munster, Germany
May 29, 1985	Max-Planck-Institut, Mulheim, Germany
May 30, 1985	University of Aachen, Germany
May 31, 1985	University of Kaiserslautern, Germany
June 3, 1985	University of Wurzburg, Germany
June 7, 1985	Free University of Berlin, Germany
June 10, 1985	Technical University of Berlin, Germany
June 17, 1985	University of Basel, Switzerland
June 18, 1985	University of Ulm, Germany
June 20, 1985	University of Tübingen, Germany
June 21, 1985	University of Freiburg, Germany
June 24, 1985	University of Heidelberg, Germany
June 25, 1985	University of Karlsruhe, Germany
June 26, 1985	University of Darmstadt, Germany
June 28, 1985	University of Konstanz, Germany
July 1, 1985	University of Stuttgart, Germany
July 2, 1985	University of Regensburg, Germany
July 5, 1985	Technical University of Munich, Germany
August 13, 1985	National Institutes of Health, Bethesda, MD
August 14, 1985	E.I. du Pont de Nemours Co., Wilmington, Delaware
December 5, 1985	University of Indiana University (Distinguished Lecturer Series)
August 29, 1986	University of Athens, Greece
September 2, 1986	University of Thessaloniki, Greece
April 17, 1987	University of California, Berkeley
December 9, 1987	California State University, Northridge
March 9, 1988	University of Southern California
July 14, 1988	Weizmann Institute, Rehovot, Israel
March 29, 1989	University of University of Grenoble, France
April 12, 1989	Centre d'Etudes Nucleaires de Grenoble, France
April 26, 1989	University of Grenoble, France
May 3, 1989	Centre d'Etudes Nucleaires de Grenoble, France
May 24, 1989	Institute Lane-Langevin, Grenoble, France
August 25, 1992	Weizmann Institute of Science, Rehovot, Israel
November 24, 1992	Academia Sinica, Taipei, Taiwan
November 26, 1992	Sun-Yat Sen University, Kaohsiung, Taiwan
November 19, 1996	Free University of Berlin, Germany

November 21, 1996	University of Munich, Germany
November 22, 1996	University of Freiberg, Germany
November 25, 1996	Technical University of Munich, Germany
November 26, 1996	University of Konstanz, Germany
November 28, 1996	University of Vienna, Austria
December 2, 1996	University of Aachen, Germany
December 16, 1996	Sun Yat Sen University, Kaohsiung, Taiwan
December 18, 1996	Tsing Hua University, Hsinchu, Taiwan
December 19, 1996	Academia Sinica, Taipei, Taiwan
December 20, 1996	National Taiwan University, Taipei, Taiwan
May 8, 1997	Peking University, Beijing, China
May 12, 1997	Nankai University, Tientsin, China
May 14, 1997	Tsing Hua University, Beijing, China
Feb. 27, 1998	Japan Atomic Energy Research Institute, Ibaraki, Japan
March 2, 1998	Tokyo Institute of Technology, Tokyo, Japan
March 4, 1998	Nanjing University, Nanjing, China
March 6, 1998	Shanghai Institute of Organic Chem., Shanghai, China
Sept. 15, 1999	Tokyo Institute of Technology, Tokyo, Japan
Sept. 20, 1999	Toyohashi University, Toyohashi, Japan
Oct. 11, 1999	University of Utah, Salt Lake City, Utah
Oct. 13, 1999	Utah State University, Logan, Utah
Feb 14, 16, 18, 2000	University of Ioannina, Ioannina, Greece (3 lectures)
Nov., 2001	U. S. C. (Inorg/Bio Divisional Th noon seminar)
Apr., 2002	University of Washington, Seattle, Wash.
Apr., 2002	University of British Columbia, Vancouver, B.C.
Apr., 2002	University of Victoria, Victoria, B.C., Canada
Feb., 2003	University of California at Santa Barbara
Nov., 2003	Oak Ridge National Laboratory, Oak Ridge, TN
Feb., 2004	University of Manchester, Manchester, U.K.
June, 2004	Chinese University of Hong Kong
Jan., 2005	University of Tokyo, Tokyo, Japan
Jan., 2005	Institute of Physical Chemistry (RIKEN), Tokyo, Japan
May, 2005	Ohio State University
Sept., 2005	University of North Dakota, Grand Forks, ND, U.S.A.
Jan., 2006	Zhongshan University, Guangzhou, China
Oct. 2006	Ibaraki University, Hitachi, Japan
March 15, 2007	Nanjing University, Nanjing, China
March 19, 2007	Xiamen University, Xiamen, China
March 22, 2007	Fuzhou University, Fuzhou, China
May 21, 2007	National Taiwan University, Taipei, Taiwan
May 22, 2007	Academia Sinica, Nankang, Taipei, Taiwan
June 5, 2007	Lanzhou University, China (Chemistry Dept.)
June 6, 2007	Lanzhou University, China (Physics Dept.)
June 11, 2007	Fudan University, Shanghai, China
June 12, 2007	SIOC (Academia Sinica), Shanghai, China
Sept., 2007	Institut Laue-Langevin, Grenoble, France (scheduled)

## CONFERENCES AND SYMPOSIA

1. Attended the Conference on Bioinorganic Chemistry, Blacksburg, Virginia, August, 1970.
2. Contributed Paper at the 14th International Conference on Coordination Chemistry, Toronto, June, 1972.
3. Contributed paper at the 164th Meeting of the American Chemical Society, New York, August, 1972.
4. Invited Speaker at the Symposium of Metal Cluster Compounds, held at the 165th Meeting of the American Chemical Society, Dallas, Texas, April, 1973.
5. Attended the Gordon Research Conference in Inorganic Chemistry, New Hampton, New Hampshire, August 6-10, 1973.
6. Chaired Session and Contributed Paper at the 6th International Conference on Organometallic Chemistry, Amherst, Massachusetts, August 13-17, 1973.
7. Invited Participant at the NY Acad. Sci. Conference on "Horizons in Organometallic Chemistry", New York, August 20-22, 1973.
8. Contributed Paper at the Spring Meeting of the American Crystallographic Association, Berkeley, California, march, 1974.
9. Contributed Paper at the 16th International Conference on Coordination Chemistry, Dublin, Ireland, August, 1974.
10. Contributed Paper at the 110th International Congress of Crystallography, Amsterdam, the Netherlands, August 1975.
11. Chaired Session and Contributed Paper at the 7th International Conference on Organometallic Chemistry, Venice, Italy, September, 1975.
12. Attended the Centennial Meeting of the American Chemical Society, New York, April 1976.
13. Attended the Symposium on Biological Aspects of Inorganic Chemistry, Vancouver, B.C., June, 1976.
14. Invited Speaker at the Symposium on Stereoselective Inorganic Reactions, held at the 172nd Meeting of the American Chemical Society, San Francisco, August, 1976.
15. Contributed Paper at the 17th International Conference on Coordination Chemistry, Hamburg, Germany, September 1976.

16. Contributed Paper at the 3rd International Symposium on Platinum Compounds on Cancer Chemotherapy, Dallas, Texas, October, 1976.
17. Invited Speaker at the Zeise Sesquicentennial Symposium, held at the 173rd Meeting of the American Chemical Society, New Orleans, Louisiana, March, 1977.
18. Invited by the American Chemical Society to Organize a Symposium on Transition Metal Hydrides, held at the Joint ACS/CIC Meeting in Montreal, Canada, in May 29 through June 2, 1977.
19. Plenary Lecturer at the 8th International Symposium on Organometallic Chemistry, held in Kyoto, Japan, in September, 1977.
20. Invited Speaker at the Metal Clusters Symposium, held at the 175th National Meeting of the American Chemical Society, Anaheim, Calif., March, 1978.
21. Invited Speaker at the Symposium on Metal Ion Interactions with Nucleic Acids and Nucleotides, held at the Atlantic Regional Meeting of the American Chemical Society, Hunt Valley, Maryland, April, 1978.
22. Invited Speaker at the Third European Inorganic Chemistry Symposium, held in Cortona, Italy, April, 1978.
23. Invited Speaker at the Gordon Conference in Inorganic Chemistry, New Hampton, N.H., August, 1978.
24. Presented a poster at the Nineteenth International Conference of Coordination Chemistry held in Prague, Czechoslovakia, In September, 1978.
25. Invited participant at the NATO Advanced Study Institute on "Organometallics of the f-Elements", held in Urbino, Italy, in September, 1978.
26. Invited participant at the NSF Workshop on "Present Needs and Future Trends in Neutron Crystallography and Spectroscopy", held in Argonne National Laboratory, Illinois, November, 1978.
27. Invited Speaker at the Third NSF Annual Workshop on Organometallic Chemistry, Pingree Park, Colorado, July, 1979.
28. Invited Speaker at the US/Italy Workshop on Metal Cluster Complexes, Gargnano, Italy August, 1979.
29. Attended the Ninth International Conference on Organometallic Chemistry, Dijon, France, September, 1979.
30. Contributed two papers at the Twentieth International Conference on Coordination Chemistry, Calcutta, India, December, 1979.

31. Invited Speaker at the Special Symposium celebrating 50 years of Chemistry at UCLA, June 1980.
32. Invited Speaker at the International Conference on the Chemistry of the Platinum Group Metals, held in Bristol, England in July, 1981.
33. Invited Speaker at the Symposium on the Chemistry and Biochemistry of Platinum and Gold, American Chemical Society Meeting, In Las Vegas, March, 1982.
34. Invited Lecturer at the Second Joint U.S./Japan/China Symposium on Organometallic Chemistry, held in Shanghai, China, June 1982.
35. Invited Lecturer at the Special Symposium on Molecular Biophysics and Biocrystallography, held in Madras, India, December, 1982.
36. United Nations Visiting Professorship at the Indian Institute of Science Bangalore, India, January, 1983.
37. Presented poster at the First International Conference in Bioinorganic Chemistry, Florence, Italy, June, 1983.
38. Chaired Session at the First International Conference in Bioinorganic Chemistry, Florence, Italy, June, 1983.
39. Invited Speaker at the Symposium of Mixed Metal Clusters; Pasadena, California, October, 1983.
40. Invited Participant at the Workshop on Neutron Scattering, Brookhaven National Laboratory, Upton, N.Y., November 3-4, 1983.
41. Invited Participant at the Symposium on the Intense Pulsed Neutron Source, Argonne National Laboratory, Argonne, Il., November 15-16, 1983.
42. Presented poster at the Fourth International Symposium on Metal Hydrides, held in Eilat, Israel, April, 1984.
43. Invited Participant at the Workshop on Neutron Scattering, Oak Ridge National Laboratory, Tennessee, May, 1984.
44. Co-organizer of the Third Joint U.S./Japan/China Symposium on Organometallic Chemistry, held in Santa Cruz, California, August 5-9, 1984.
45. Participant at The Thirteenth International Congress of Crystallography, held in Hamburg, Germany, August 9-18, 1984.
46. Participant at the Fourth International Symposium on Heterogeneous Catalysis, Leningrad, U.S.S.R., September, 1984.



47. Presented two papers at the 12th International Conference on Organometallic Chemistry, Vienna, Austria, September, 1985.
48. Invited Speaker at the Symposium on Hydrogen-Rich Inorganic and Organometallic Complexes, held at the 191st ACS National Meeting, held at New York City, April 1986.
49. Presented Paper at the Fifth International Symposium on Metal Hydrides, Maubuisson, France, May, 1986.
50. Presented Paper at the 24th International Conference on Coordination Chemistry, Athens, Greece, August, 1986.
51. Invited Speaker at Special Symposium on New Directions in Chemotherapy, University of Thessaloniki, Greece, September 1, 1986.
52. Presented Poster at the Fifth International Symposium on Platinum Compounds in Cancer Chemotherapy, held in Padova, Italy, June 29-July 2, 1987.
53. Presented Poster at the Third International Conference on Bioinorganic Chemistry, held in Amsterdam, the Netherlands, July 6-10, 1987.
54. Presented Poster at the International Neutron Scattering Symposium, held in Sydney, Australia, August 7-10, 1987.
55. Presented Poster at the Fourteenth International Congress on Crystallography held in Perth, Australia, August 12-20, 1987.
56. Presented Paper at the Pacific Conference on Chemistry and Spectroscopy, Irvine, California, October, 1987.
57. Presented Two Posters at the Third International Chemical Symposium of North America, held in Toronto, Canada, June 6-10, 1988.
58. Presented Poster at the Annual American Crystallographic Association Conference held in Philadelphia, June 26-30, 1988.
59. Presented Paper at the American Chemical Society Meeting, Dallas, Texas, Spring 1989.
60. Presented Poster at the American Chemical Society Meeting, Dallas, Texas, Spring 1989.
61. Presented Paper at the American Chemical Society Meeting, Miami Beach, Florida, Fall 1989.

62. Presented Poster at the 18th International Conference in Organometallic Chemistry, Warsaw, Poland, August, 1992.
63. Invited Lecturer at the International Symposium on Inorganic and Organic Chemistry (in commemoration of the 60<sup>th</sup> Anniversary of the Chinese Chemical Society), Taipei, Taiwan, November, 1992.
64. Presented Poster at the Annual American Crystallographic Association Meeting, Albuquerque, New Mexico, May, 1993.
65. Presented Poster at the 16<sup>th</sup> Congress of the International Union of Crystallography, Beijing, China, August, 1993.
66. Attended Sixteenth Annual Pittsburgh Diffraction Conference, Pittsburgh, PA, November 1994.
67. Attended U.C. Irvine Conference on Protein Crystallography: "Molecular Structure: Applications to Problems in Medicine", held in Newport Beach, CA on March 30 - April 2, 1995.
68. Attended Ninth Conversation (Conference) on Biomolecular Stereodynamics, held in Albany, NY on June 20-24, 1995.
69. Attended Sixth International Symposium on the Crystallization of Biological Macromolecules, held in Hiroshima, Japan in November 12-17, 1995.
70. Invited Speaker (Session Lecturer) at the First International Symposium on Inorganic Chemistry for Chinese Scientists, held in Hong Kong in July, 1996.
71. Presented Poster at the 32nd International Conference on Coordination Chemistry, held in Santiago, Chile in August 1997.
72. Invited Speaker, Inorganic Chemistry Division, 215th National Meeting of the American Chemical Society, held in Dallas, Texas on March, 1998.
73. Presented Poster at the 18th International Congress of Crystallography, held in Glasgow, Scotland in August, 1999
74. Invited talk at a Conference on Neutrons in Biology, held in Ibaraki, Japan in March, 2000.
75. Invited Speaker at a Workshop on Neutrons in Biology, Fujioka, Japan, March, 2001.
76. Presented invited talk at American Crystallographic Association Meeting, held in Los Angeles (Bonaventure Hotel) in July, 2001.

77. Presented invited talk at the First International Conference on Neutron Scattering in Munich, Germany ; Sept., 2001 (Minisymposium on Hydrogen Atoms in Biological Systems).
78. Invited talk at SICCC-2 (the Second Singapore International Conference on Chemistry, held in Dec., 2001).
79. Presented invited talk at the Nineteenth International Union of Crystallography Conference, held in Geneva, Switzerland in August., 2002 (Microsymposium on Transition Metal-Hydrogen Interactions).
80. Invited paper at the Karl Christe Award Symposium, held at the ACS National Meeting in New Orleans, March, 2003).
81. Plenary speaker at the International Symposium on Diffraction Structural Biology (ISDSB-2003; held in Tsukuba, Japan in May, 2003).
82. Invited Speaker at the American Crystallographic Association National Meeting, held in Cincinnati, in July, 2003 (Symposium on Neutrons in Macromolecular Crystallography).
83. Plenary Speaker at the IPN-2003 (International Symposium on Pulsed Neutron Science), held in Tsukuba, Japan in October 27-31, 2003.
84. Invited talk at a DOE Workshop on Neutron Scattering, held in Washington, D.C. on June 4-5, 2004.
85. Invited talk at the American Conference on Neutron Scattering (ACNS), held in Washington, D.C. on June 6-10, 2004.
86. Major invited speaker at the Annual Meeting of the American Crystallographic Association (ACA) held in Chicago in July 17-22, 2004.
87. Invited speaker at the Asian Crystallographic Association Conference (ASCA-04) held in Hong Kong in June 27-30, 2004.
88. Major invited speaker at the 25<sup>th</sup> European Crystallographic Meeting (ECM-25), held in Budapest, Hungary, Aug 26-31, 2004.
89. Plenary Lecturer at a conference of Chinese Organic and Inorganic Chemists (ISCIC-5 and ISCOG-8), held in Dec. 19-22, 2004 in Hong Kong.
90. Invited Speaker at a Workshop on Neutron Scattering, Tokai, Japan, Jan., 2005.

91. Invited speaker at the Annual American Crystallographic Meeting (ACA) held in Orlando, Florida in May, 2005.
92. Major invited speaker at the 20th Congress of the International Union of Crystallography (IUCr), held in Florence, Italy, Aug., 2005.
93. Major Invited Speaker at the 2005 International Conference on Neutron Scattering (ICNS), held in Nov., 2005 in Sydney, Australia.
94. Invited Speaker at a Workshop on Neutron Scattering, Hitachi, Japan, Jan., 2006.
95. Major Invited speaker (3 talks) at the Annual American Crystallographic Meeting (ACA), and an accompanying workshop, held in Honolulu, Hawaii in July, 2006.
96. Bryden Distinguished Lecturer at Calif State University, Fullerton, April, 2006
97. Contributed Oral Presentation at the ACS National Meeting in San Francisco, Sept., 2006.
98. Invited Speaker at a Symposium in honor of retirement of Prof. W. P. Weber, U.S.C., Fall, 2006
99. Invited Speaker at the ISCOG-9/ISCIC-6 Conference, Singapore, December, 2006
100. Invited Speaker at a Symposium in honor of 70<sup>th</sup> birthday of Prof. Karl O. Christe, U.S.C., Fall, 2006
101. Plenary Lecturer at the 12th Biophysics Symposium, held in Zhunan, Taiwan, May, 2007.
102. Major Invited Lecturer at "Laue-2007" International Meeting, held at the Institut Laue-Langevin, in Grenoble, France, January, 2007.
103. One-week Guest Lectureship at the National University of Singapore (3 lectures) to take place in Dec., 2007