

## M. J. Gerald Lesley, Chemistry

### Peer Reviewed Publications in Professional Journals, Books, Conference Proceedings:

31. M. J. G. Lesley, M. R. Pineau, D. M. Nelson, G. Crundwell, "Syn-2,4-bis-(4'-methoxyphenyl)-*trans*-1,3-di(thexyl)-di-1,3-boradi-2,4-azacyclobutadiene", *Acta Crystallogr.* **2007**, *E63*, o1204-o1206.
30. R. A. Baber, J. P. H. Charmant, M. J. G. Lesley, N. C. Norman, A. G. Orpen and J. Rossi Hydrolysis of Diborane(4) Compounds. In *ACS Symposium Series, 917, Modern Aspects of Main Group Chemistry*; M. Lattman and R. A. Kemp Eds.; American Chemical Society: Washington, DC, 2006; pp 137-151.
29. Stanley Backiel, Besnik Bajrami, Allen D. Hunter, Matthias Zeller, M. J. Gerald Lesley, "Bis(benzylsulfanyl)maleonitrile", *Acta. Crystallogr.*, **2005**, *E61*, o2817 – o2819.
28. C. A. Hnetinka, A. D. Hunter, M. Zeller, M. J. G. Lesley "1,1'-Dibromoferrocene", *Acta. Crystallogr.*, **2004**, *E60*, m1806 – m1807.
27. M. J. G. Lesley, M. C. Pineau, A. D. Hunter, M. Zeller, "*p*-Anisolecarbonitrile", *Acta. Crystallogr.*, **2004**, *E60*, o1937 - o1938.
26. M. J. G. Lesley, N. C. Norman, C. R. Rice, "Synthesis of Diborane(4) Compounds: B<sub>2</sub>(NMe<sub>2</sub>)<sub>4</sub>, B<sub>2</sub>(NMe<sub>2</sub>)<sub>2</sub>Cl<sub>2</sub>, B<sub>2</sub>Cat<sub>2</sub> (Cat = 1,2-O<sub>2</sub>C<sub>6</sub>H<sub>4</sub>) and B<sub>2</sub>Cl<sub>4</sub>(HNMe<sub>2</sub>)<sub>2</sub>", *Inorg. Synth.* **2004**, *34*, 1-5.
25. K. M. Anderson, M. J. G. Lesley, N. C. Norman, A. G. Orpen, M. Quayle, C. R. Rice, J. Starbuck, P. M. Timms, G. R. Whittell, "Recent Advances in the Chemistry of Diborane(4) Compounds", in Contemporary Boron Chemistry, M. G. Davidson, A. K. Hughes, T. B. Marder, K. Wade, Eds., R. Soc. Chem. Spec. Publ., Cambridge, 2000, p. 391-394.

24. H. Nguyen, A. P. Jarvis, M. J. G. Lesley, M. Kelly, S. V. Reddy, N. J. Taylor, S. Collins, "Isotactic Polymerization of Methyl Methacrylate Using a Prochiral, Zirconium Enolate Initiator", *Macromolecules*, **2000**, *33*(5), 1508 - 1510.
23. M. J. G. Lesley, N. C. Norman, A. G. Orpen, J. Starbuck, "Synthetic Routes to Cyclic and Asymmetric Diborane (4) Compounds", *New J. Chem.*, **2000**, *24*, 115-117.
22. K. M. Anderson, M. J. G. Lesley, N. C. Norman, A. G. Orpen, J. Starbuck, "The Platinum Catalysed Diboration of Alkynes Using 1,2-B<sub>2</sub>Cl<sub>2</sub>(NMe<sub>2</sub>)<sub>2</sub>: Formation of 1-Azonia-2-Borata-5-Borole Derivatives", *New J. Chem.*, **1999**, *23*, 1053 - 1055.
21. M. J. G. Lesley, N. C. Norman, A. G. Orpen, J. Starbuck, T. B. Marder, W. Clegg, A. J. Scott, "Structural Characterisation of Pt-Catecholato and Thiocatecholato Compounds", *Acta. Crystallogr.*, **1999**, *C55*, 1272 - 1275.
20. D. Curtis, M. J. G. Lesley, N. C. Norman, A. G. Orpen, J. Starbuck, "Phosphine Exchange Reactions Involving *cis*-[Pt(PPh<sub>3</sub>)<sub>2</sub>(Bcat)<sub>2</sub>] (cat = 1,2-O<sub>2</sub>C<sub>6</sub>H<sub>4</sub>) and Oxidative Addition of 1,2-B<sub>2</sub>(NMe<sub>2</sub>)<sub>2</sub>Cl<sub>2</sub> to Pt(0) ", *J. Chem. Soc., Dalton Trans.*, **1999**, 1687 - 1694.
19. M. J. G. Lesley, U. Mock, C. R. Rice, M. Quayle, A. G. Orpen, N. C. Norman, "Synthesis of a [4]-Ferrocenophane Containing a Boron-Boron Bond", *J. Organomet. Chem.*, **1999**, *582*, 116 - 118.
18. G. J. Irvine, M. J. G. Lesley, T. B. Marder, N. C. Norman, C. R. Rice, E. G. Robins, W. Roper, G. R. Whittell, Wright, L. J. "Transition Metal-Boryl Compounds: Synthesis, Reactivity and Structure", *Chem. Rev.* **1998**, *98*, 2685 - 2722.
17. P. Nguyen, G. Lesley, T. B. Marder, E. C. Robins, N. L. Pickett, W. Clegg, N. C. Norman, J. A. Ashmore, J. C. Green, "Bis-Catecholate, Bis-Dithiocatecholate and Tetraalkoxy Diborane (4) Compounds: Aspects of Synthesis and Electronic Structure", *Inorg. Chem.* **1998**, *37*, 5282 - 5288.

16. M. J. G. Lesley, A. Woodward, N. J. Taylor, T. B. Marder, I. Cazenobe, I. Ledoux, J. Zyss, A. Thornton, D. Bruce, A. K. Kakkar, "Lewis Acidic Borane Complexes of Pyridines and Stilbazoles for Nonlinear Optics", *Chem. Mater.* **1998**, *10*, 1355 - 1365.
15. W. Clegg, F. J. Lawlor, G. Lesley, T. B. Marder, N. C. Norman, A. G. Orpen, M. J. Quayle, C. R. Rice, A. J. Scott, F. E. Souza, "Oxidative Addition of Boron-Boron, Boron-Chlorine and Boron-Bromine Bonds to Platinum(0) ", *J. Organomet. Chem.*, **1998**, *550*, 183 - 192.
14. G. Lesley, T. B. Marder, N. C. Norman, C. Rice, "Diborane (4) Compounds: An Overview of Synthesis, Structure and Reactivity", *Main Group Chemical News*, **1997**, *5*, 4 -11.
13. Y. G. Lawson, M. J. G. Lesley, T. B. Marder, N. C. Norman, C. R. Rice, "Diboration of  $\alpha,\beta$ -Unsaturated Ketones", *Chem. Commun.*, **1997**, 2051 - 2052.
12. P. Nguyen, G. Lesley, T.B. Marder, I. Ledoux, and J. Zyss, "Second-Order Nonlinear Optical Properties of Push-Pull Bis(phenylethynyl)benzenes and Unsymmetric Platinum Bis(Phenylacetylide) Complexes", *Chem. Mater.*, **1997**, *9*, 406 - 408.
11. W. Clegg, C. Dai, F. J. Lawlor, G. Lesley, T. B. Marder, P. Nguyen, N. C. Norman, N. L. Pickett, C. R. Rice, E. G. Robins, A. J. Scott, N. J. Taylor, "Diborane (4) Compounds and Transition Metal Catalyzed Diboration Reactions", in Advances in Boron Chemistry, W. Siebert, Ed., R. Soc. Chem. Spec. Publ., Cambridge, 1997, p. 389 - 392.
10. W. Clegg, A. J. Scott, C. Dai, G. Lesley, T. B. Marder, N. C. Norman, L. J. Farrugia, " $(\mu^2$ -Pinacolato-*O,O'*)-bis(pinacolato-*O,O'*)-diboron", *Acta. Crystallogr.*, **1996**, *C52*, 2545 - 2547.
9. W. Clegg, A. J. Scott, G. Lesley, T. B. Marder, "The Products of Catalysed Diboration of 4-cyanophenylacetylene and Bis(*p*-tolyl)ethyne by Bis(catecholato-*O,O'*) diboron", *Acta. Crystallogr.*, **1996**, *C52*, 1991 -1995.

8. W. Clegg, A. J. Scott, G. Lesley, T. B. Marder, "The Product of Catalysed Diboration of Bis(4-methoxyphenyl)ethyne by Bis(pinacolato-*O,O'*) diboron", *Acta. Crystallogr.*, **1996**, C52, 1989 - 1991.
7. G. Lesley, P. Nguyen, N. J. Taylor, T. B. Marder, A. J. Scott, W. Clegg, and N. C. Norman, "The Synthesis and Characterization of Platinum(II)-Bis(Boryl) Catalyst Precursors for Diboration of Alkynes and Diynes: Molecular Structures of [(PPh<sub>3</sub>)<sub>2</sub>Pt(B-4-Bu<sup>t</sup>-cat)<sub>2</sub>], *cis*-[(PPh<sub>3</sub>)<sub>2</sub>Pt(Bcat)<sub>2</sub>], *cis*-[(dppe)Pt(Bcat)<sub>2</sub>], *cis*-[(dppb)Pt(Bcat)<sub>2</sub>], (E)-(4-MeOC<sub>6</sub>H<sub>4</sub>)C(Bcat)=CH(Bcat), (Z)-(C<sub>6</sub>H<sub>5</sub>)C(Bcat)=C(C<sub>6</sub>H<sub>5</sub>)(Bcat) and (Z,Z)-(4-MeOC<sub>6</sub>H<sub>4</sub>)C(Bcat)=C(Bcat)-C(Bcat)=C(4-MeOC<sub>6</sub>H<sub>4</sub>)(Bcat), (cat = 1,2-O<sub>2</sub>C<sub>6</sub>H<sub>4</sub>; dppe = Ph<sub>2</sub>PCH<sub>2</sub>CH<sub>2</sub>-PPh<sub>2</sub>, dppb = Ph<sub>2</sub>P(CH<sub>2</sub>)<sub>4</sub>PPh<sub>2</sub>)", *Organometallics*, **1996**, 15, 5137 - 5154.
6. P. Nguyen, G. Lesley, C. Dai, N. J. Taylor, T. B. Marder, V. Chu, C. Viney, I. Ledoux, and J. Zyss, "Well-Defined Conjugated Rigid-Rods as Multifunctional Materials: Linear and Nonlinear Optical Properties and Liquid Crystalline Behavior", in Applications of Organometallic Chemistry in the Preparation and Processing of Advanced Materials, J.F. Harrod and R.M. Laine, Eds., *NATO ASI Series E*, Kluwer Academic Publ., Dordrecht, 1995, Vol. 297, p. 333-347.
5. P. Nguyen, Z. Yuan, L. Agocs, G. Lesley, and T. B. Marder, "Synthesis of Symmetric and Unsymmetric 1,4-Bis(*p*-R-phenylethynyl) benzenes via Palladium /Copper Catalyzed Cross-Coupling and Comments on the Coupling of Aryl Halides with Terminal Acetylenes", invited contribution for a special "Topical Volume - Metals in Organic Synthesis" issue of *Inorg. Chim. Acta.*, **1994**, 220, 289 - 296.
4. P. Nguyen, G. Lesley, N. J. Taylor, T. B. Marder, N. L. Pickett, W. Clegg, M. R. J. Elsgood, and N. C. Norman, "Oxidative Addition of B-B Bonds by Rhodium (I) Phosphine Complexes: Molecular Structures of B<sub>2</sub>cat<sub>2</sub> (cat = 1,2-O<sub>2</sub>C<sub>6</sub>H<sub>4</sub>) and its 4-Bu<sup>t</sup> and 3,5-Bu<sup>t</sup>- Analogues", *Inorg. Chem.*, **1994**, 33, 4623 - 4624.
3. P. M. Macdonald, A. D. Hunter, G. Lesley and J. Li, "Solid State Distortions of Linear Mono-, Bi-, and Trimetallic Bis(Tri-*n*-butylphosphine) Nickel and Palladium Complexes

- Having 1,4-Tetrafluorophenylene Bridges as Observed Via  $^{31}\text{P}$  CPMAS Spectroscopy", *Solid State Nucl. Magn. Reson.*, **1993**, 2, 47 - 55.
2. T. B. Marder, G. Lesley, Z. Yuan, H. B. Fyfe, P. Chow, G. Stringer, I. R. Jobe, N. J. Taylor, I. D. Williams, and S. K. Kurtz, "Transition Metal Acetylides for Nonlinear Optics", in Materials for Nonlinear Optics: Chemical Perspectives, S. R. Marder, J. Sohn, and G. D. Stucky, Eds., *ACS Symposium Series* 1991, Vol. 455, p. 605 - 615.
  1. G. Lesley, Z. Yuan, G. Stringer, I. R. Jobe, N. J. Taylor, L. Koch, K. Scott, T. B. Marder, I. D. Williams, and S. K. Kurtz, "Second-Order Optical Nonlinearities in Linear Donor-Acceptor Substituted Transition Metal Acetylides", in Organic Materials for Nonlinear Optics II, R. A. Hahn and D. Bloor, Eds., R. Soc. Chem. Spec. Publ., Cambridge, 1991, Vol. 91, p. 197 - 203.

### **Non-Peer Reviewed Professional Publications**

8. M. J. G. Lesley, "CHE 434 Inorganic Chemistry Laboratory Manual, 3<sup>rd</sup> – 5<sup>th</sup> Editions" 2005-7, 46(+) pages.
7. M. J. G. Lesley and G. S. Kowalczyk, "General Chemistry I Laboratory Manual, 4<sup>th</sup> Edition" Wiley Custom Press: New Jersey, 2007, 136 pages.
6. M. J. G. Lesley and G. S. Kowalczyk, "General Chemistry I Laboratory Manual, 3<sup>rd</sup> Edition" Wiley Custom Press: New Jersey, 2005, 136 pages.
5. M. J. G. Lesley and G. S. Kowalczyk, "General Chemistry I Laboratory Manual, 2<sup>nd</sup> Edition" 2004, 130 pages.
4. M. J. G. Lesley, "CHE 434 Inorganic Chemistry Laboratory Manual, 2<sup>nd</sup> Edition" 2004, 85 pages.
3. M. J. G. Lesley and G. S. Kowalczyk, "General Chemistry I Laboratory Manual" 2003, 130 pages.
2. M. J. G. Lesley, "CHE 434 Inorganic Chemistry Laboratory Manual" 2003, 75 pages.
1. M. J. G. Lesley and G. S. Kowalczyk, "General Chemistry Supplemental Laboratory Videos", <http://www.southernct.edu/departments/ftrc/chemistry/videos.index>

## Conference Presentations:

54. Alex S-F. Au-Yeung, M. J. Gerald Lesley, Herman H-Y. Sung, Ian D. Williams, "Facile Flux Synthesis of an Organic bis(Salicylato)borate: Crystal Structures of the Salts  $[\text{pipzH}_2][\text{B}(\text{Sal})_2]_2$  and  $[\text{pipzH}_2][\text{SalH}]_2$ ", 8<sup>th</sup> Conference of the Asian Crystallographic Association (AsCA), Taipei, Taiwan, Nov. 3-7, 2007.
53. M. J. G. Lesley, "Synthesis and Reactivity of Associated Aldiminoborane Dimers and Polymers" 2006 CSU Research Conference, WCSU, October, 2006.
52. D. M. Nelson, M. R. Pineau, M. Taylor, G. Crundwell, M. J. G. Lesley, "Synthesis and Characterization of Associated Aldiminoborane Dimers", 232<sup>nd</sup> ACS National Meeting, San Francisco, CA., Sept. 2006, accepted contribution. (Paper number 300-Division of Inorganic Chemistry-Main Group Chemistry)
51. M. J. G. Lesley, "Synthesis and Reactivity of Associated Aldiminoborane Dimers and Polymers" " Annual meeting of the Chemical Institute of Ceylon, Sri Lanka, July 2006 - invited keynote seminar.
50. J. K. McGuinness, D. Day, C. C. Broadbridge, A. Lehman, M. J. G. Lesley, S. X. Luo, S. Calvin, "TEM Size Distribution Study for Platinum Nanoparticles: Impact of Preparation Technique", Fall 2005 Meeting of the Materials Research Society, Boston, MA, November 2005.
49. M. J. G. Lesley, M. Pineau, S. Backiel, D. Nelson, D. Day, C. Welsh, A. Green, M. Taylor, P. Joyce, C. Broadbridge, A. Asandei, A. Hunter, M. Zeller, "Aldiminoborane Chemistry: Synthesis, Reactivity and Novel Applications", 2005 CSU Research Conference, CCSU, October, 2005.
48. M. J. G. Lesley, G. Kowalczyk, R. Cuddihee, S. Walonowski, J. Brignola, G. Crundwell, S. Evon, R. Quast "IT Pilot Project: Chemistry Department Computer Facilities/Remote

Instrumentation Operation and Wireless Chemistry Labs", CSU Computer Conference, ECSU, March 2005.

47. D. M. Nelson, M. R. Pineau, C. Welsh, A. D. Green, M. J. G. Lesley, "The Synthesis and Reactivity of Aldiminoborane Compounds Prepared by the Hydroboration of Aryl- and Alkyl nitrile Derivatives", 88th Canadian Chemical Conference, Saskatoon, Saskatchewan May 2005.
46. M. R. Pineau, S. Backiel, B. Bajrami, M. J. G. Lesley, A. D. Asandei, A. D. Hunter, M. Zeller, "The Synthesis and Characterization of Poly(Cyclodiborazane) Derivatives Incorporating Bis(Alkylthio)Maleonitrile Derivatives", 88th Canadian Chemical Conference, Saskatoon, Saskatchewan May 2005.
45. L. M. Toscano, C. Caragianis-Broadbridge, M. J. G. Lesley, "The Functionality of Thin Tin Deposits as a Solderability Preservative for Printed Circuit Boards", Oral presentation and abstract published in Proceedings of the 2003 Connecticut Symposium on Microelectronics and Optoelectronics, University of Connecticut, April 2003.
44. J. Kot, M. J. G. Lesley, C. M. Vogels, S. A. Westcott, "Catalyzed Borylation of Phosphinoalkenes and Phosphinoalkynes", 225<sup>th</sup> ACS National Meeting, New Orleans, LA, Mar. 2003, accepted contribution. (Paper number 674-Division of Inorganic Chemistry-Organometallic Synthesis)
43. M. J. G. Lesley, M. Pineau, B. Bajrami, J. Kot, "Synthesis of Maleonitriledithiolate (mnt) Based Poly(cyclodiborazane) Derivatives", 225<sup>th</sup> ACS National Meeting, New Orleans, LA, Mar. 2003, accepted contribution. (Paper number 620- Division of Inorganic Chemistry--Materials Synthesis)
42. B. Bajrami, J. Kot, M. Pineau, M. J. G. Lesley, "The Synthesis of Air Stable Conducting Polymers Containing Boron", Research Cooperation Workshop on Materials and Synthesis, University of Massachusetts, Amherst, MA, Oct. 2003, invited contribution.

41. L. M. Toscano, C. Caragianis-Broadbridge, M. J. G. Lesley, "The Functionality of Thin Tin Deposits as Solderability Preservative for Printed Circuit Boards", Poster presentation and abstract published in Proceedings of the 2002 Connecticut Symposium on Microelectronics and Optoelectronics, Yale University, March 2002.
40. B. Bajrami, M. R., Pineau, M. J. Gerald Lesley, "Steps Towards the Synthesis of Boron Containing Conducting Polymers", 7<sup>th</sup> Annual CSU Faculty Research Conference, Southern Connecticut State University, New Haven, CT, April 2002.
39. G. Lesley, S. Basnet, "Synthesis and Reactivity of Maleonitriledithiolate (mnt) Derivatives", 12th Annual Faculty Research Conference, Moorhead State University, Moorhead, MN, April 2000.
38. G. Lesley, K. M. Anderson, N. C. Norman, A. G. Orpen, J. Starbuck, "Catalytic and Stoichiometric Reactivity of the Diborane(4) Compound  $B_2Cl_2(NMe_2)_2$ ", 83rd Canadian Chemical Conference, Calgary, Alberta, May, 2000.
37. M. J. G. Lesley, N. C. Norman, C. R. Rice, E. G. Robins, G. R. Whittell, "Recent Advances in the Chemistry of Diborane(4) Compounds and Catalyzed Diboration Reactions", Tenth International Meeting on Boron Chemistry (IMEBORON X), Durham, England, 1999.
36. N. C. Norman, E. G. Robins, G. Lesley, T. B. Marder, "Platinum Catalyzed Diborations of Alkynyl Silanes and Boronates", 1998 National Congress of the Royal Society of Chemistry, Durham, England, April, 1998.
35. F. E. S. Souza, M. J. G. Lesley, T. B. Marder, A. J. Scott, W. Clegg, "Oxidative Addition of B-Chlorocatecholborane to Late Transition Metal Complexes: Synthesis of Model Compounds for the Study of  $\beta$ -hydride Elimination", 1998 National Congress of the Royal Society of Chemistry, Durham, England, April, 1998.

34. W. Clegg, F. J. Lawlor, N. C. Norman, N. L. Pickett, C. R. Rice, E. G. Robins, A. J. Scott, C. Dai, G. Lesley, P. Nguyen, A. G. Orpen, M. J. Quayle, N. J. Taylor, T. B. Marder, G. R. Whittell, "Diborane (4) Compounds and Transition Metal Catalyzed Diboration Reactions", Symposium on "Transition Metal Group 13 Compounds Including Their Roles in Catalytic Processes", Fifth Chemical Congress of North America, Cancun, Mexico, November 1997.
33. W. Clegg, C. Dai, F. J. Lawlor, G. Lesley, T. B. Marder, P. Nguyen, N. C. Norman, N. L. Pickett, C. R. Rice, E. G. Robins, A. J. Scott, F. E. S. Souza, N. J. Taylor, G. R. Whittell, "Diborane (4) Compounds and Transition Metal Catalyzed Diboration Reactions", IRIS VIII-Inorganic Rings International Symposia, University of Loughborough, England, August 1997.
32. F. E. S. Souza, M. J. G. Lesley, T. B. Marder, A. J. Scott, W. Clegg, "Oxidative Addition of B-Chlorocatecholborane to Late Transition Metal Complexes: Synthesis of Model Compounds for the Study of  $\beta$ -hydride Elimination", 80th Canadian Chemical Conference, Windsor, Ontario, June 1997.
31. W. Clegg, F. J. Lawlor, N. C. Norman, N. L. Pickett, E. G. Robins, A. J. Scott, C. Dai, G. Lesley, P. Nguyen, N. J. Taylor, T. B. Marder, "Diborane (4) Compounds and Transition Metal Catalyzed Diboration Reactions", Ninth International Meeting on Boron Chemistry (IMEBORON IX), Heidelberg, Germany, 1996.
30. T. B. Marder, G. Lesley, E. G. Robins, N. C. Norman, A. J. Scott, W. Clegg, "Platinum Catalyzed Silylboration of Alkynes and Diynes", 29th Inorganic Discussion Weekend, Montreal, Quebec, November, 1996.
29. G. Lesley, P. Nguyen, T.B. Marder, A.J. Scott, W. Clegg, F. Lawlor, N.C. Norman, "Synthesis and Characterization of Pt(II) Bis(boryl) Catalyst Precursors for the

- Diboration of Alkynes and Diynes", 29th Inorganic Discussion Weekend, Montreal, Quebec, November, 1996.
28. G. Lesley, A. Woodward, N.J. Taylor, T.B. Marder, A.K. Kakkar, D. W. Bruce, "Boron Adducts of Substituted Organic Pyridines for Second Order Nonlinear Optics", 29th Inorganic Discussion Weekend, Montreal, Quebec, November, 1996.
  27. F. E. S. Souza, M. J. G. Lesley, T. B. Marder, A. J. Scott, W. Clegg, "Oxidative Addition of B-Chlorocatecholborane to Late Transition Metal Complexes: Synthesis of Model Compounds for the Study of  $\beta$ -Hydride Elimination", 29th Inorganic Discussion Weekend, Montreal, Quebec, November, 1996.
  26. F. E. S. Souza, M. J. G. Lesley, T. B. Marder, "Synthesis of Vinylboronate Esters Via Rhodium Catalyzed Dehydrogenative Borylation of Alkenes", 29th Inorganic Discussion Weekend, Montreal, Quebec, November, 1996.
  25. F. E. S. Souza, M. J. G. Lesley, T. B. Marder, "Synthesis of Vinylboronate Esters Via Rhodium Catalysed Dehydrogenative Borylation of Alkenes", 7th Quebec/Ontario Minisymposium in Bioorganic and Synthetic Organic Chemistry, Waterloo, Ontario, Canada, October, 1996.
  24. T.B. Marder, M.J.G. Lesley, P. Nguyen, C. Dai, F. Souza, C. Wiesauer, S.A. Westcott, N.J. Taylor, F. Lawlor, E.G. Robins, N.C. Norman, A.J. Scott, W. Clegg, N.L. Pickett, R.T. Baker, and J.C. Calabrese, "The Role of Transition Metal Boryl Complexes in Homogeneous Catalysis: Metal Catalyzed Diboration", Invited Lecture, 10th International Symposium on Homogeneous Catalysis (ISHC-10), Princeton, NJ, August 1996.
  23. A.J. Scott, W. Clegg, C. Dai, P. Nguyen, G. Lesley, F. Somera, M.P. Hirsch, N.J. Taylor, T.B. Marder, C. Viney, and V. Chu, "Investigation of the Solid State Crystal Structures of Conjugated Rigid-Rod Compounds: Preliminary Attempts to Correlate Packing with

- Liquid Crystalline Phase Behaviour", XVIIth Congress and General Assembly of the International Union of Crystallography, Seattle, WA, August, 1996.
22. G. Lesley, P. Nguyen, T.B. Marder, A.J. Scott, W. Clegg, F. Lawlor, N.C. Norman, "Synthesis and Characterization of Pt(II) Bis(boryl) Catalyst Precursors for the Diboration of Alkynes and Diynes", 79th Canadian Chemical Conference, St. John's, Newfoundland, June 1996.
  21. G. Lesley, A. Woodward, N.J. Taylor, T.B. Marder, A.K. Kakkar, D. W. Bruce, "Boron Adducts of Substituted Organic Pyridines for Second Order Nonlinear Optics", 79th Canadian Chemical Conference, St. John's, Newfoundland, June 1996.
  20. W. Clegg, F.J. Lawlor, N.C. Norman, N.L. Pickett, E.G. Robins, A.J. Scott, C. Dai, G. Lesley, P. Nguyen, N.J. Taylor and T.B. Marder, "Diborane(4) Compounds and Transition Metal Catalyzed Diboration Reactions", BUSA-V-MEX (Boron-USA-Mexico Conference), Guanajuato City, Mexico, May 1996.
  19. G. Lesley, P. Nguyen, T.B. Marder, A.J. Scott, W. Clegg, F. Lawlor, N.C. Norman, "Synthesis and Characterization of Pt(II) Bis(boryl) Catalyst Precursors for the Diboration of Alkynes and Diynes", BUSA-V-MEX Workshop, Guanajuato, Mexico, May, 1996.
  18. G. Lesley, A. Woodward, N.J. Taylor, T.B. Marder, A.K. Kakkar, D. W. Bruce, "Boron Adducts of Substituted Organic Pyridines for Second Order Nonlinear Optics", BUSA-V-MEX Workshop, Guanajuato, Mexico, May, 1996.
  17. G. Lesley, P. Nguyen, N.J. Taylor, T.B. Marder, A.J. Scott, W. Clegg, N.C. Norman, "Synthesis and Characterization of Pt(II) Bis(boryl) Catalyst Precursors for the Diboration of Alkynes and Diynes", 28th Inorganic Discussion Weekend, London, Ontario, Canada, November, 1995.

16. G. Lesley, P. Nguyen, F. Somera, N.J. Taylor, T.B. Marder, I. Ledoux, and J. Zyss, "Synthesis, Linear, and Nonlinear Optical Properties of Unsymmetrically Substituted Conjugated Rigid-Rod Chromophores", 78th Canadian Chemical Conference, Guelph, Ontario, May 1995.
15. R.T. Baker, J.C. Calabrese, S.A. Westcott, P. Nguyen, G. Lesley, and T.B. Marder, "Attack of the Killer B's! Oxidative Addition of the B-B Bond in  $B_2cat_2$  to Low-Valent Transition Metal Phosphine Complexes (cat = 1,2- $O_2C_6H_4$ ) and Metal-Catalyzed Diboration of Vinylarenes", 1994 Gordon Conference on Inorganic Chemistry, Wolfboro, NH, July/August 1994.
14. T.B. Marder, P. Nguyen, G. Lesley, S.A. Westcott, N.J. Taylor, N.C. Norman, N. Pickett, and R.T. Baker, "The Role of Transition Metal Boryl Complexes in Homogeneous Catalysis", Invited Session Lecture, XVI International Conference on Organometallic Chemistry, Sussex, England, July 1994.
13. T.B. Marder, P. Nguyen, G. Lesley, N.J. Taylor, N.C. Norman, and N. Pickett, "Synthesis, Structure and Reactivity of  $(RO)_2B-B(OR)_2$  Compounds", XVI International Conference on Organometallic Chemistry, Sussex, England, July 1994.
12. P. Nguyen, G. Lesley, S.A. Westcott, N.J. Taylor, T.B. Marder, N.C. Norman, N.L. Pickett, and R.T. Baker, "The Role of Transition Metal Boryl Complexes in Homogeneous Catalysis", Boron USA IV (BUSA IV) Conference, Syracuse, NY, July 1994.
11. P. Nguyen, G. Lesley, N.J. Taylor, T.B. Marder, N.L. Pickett, W. Clegg, M.R.J. Elsegood, and N.C. Norman, "Synthesis, Structure and Reactivity of  $(RO)_2B-B(OR)_2$  Compounds", Boron USA IV (BUSA IV) Conference, Syracuse, NY, July 1994.
10. G. Lesley, Z. Yuan, G. Stringer, I. Jobe, N.J. Taylor, L. Koch, K. Scott, G. Zelding, T.B. Marder, I.D. Williams and S.K. Kurtz, "Second Order Optical Nonlinearities in Linear

- Donor-Acceptor Substituted Transition Metal Acetylides", 2nd International Symposium on Organic Materials for Non-linear Optics, OMNO 90, Oxford, England, September 1990.
9. G. Lesley, Z. Yuan, G. Stringer, I. Jobe, N.J. Taylor, L. Koch, K. Scott, G. Zelding, T.B. Marder, I.D. Williams and S.K. Kurtz, "Second Order Optical Nonlinearities in Linear Donor-Acceptor Substituted Transition Metal Acetylides", XIVth International Conference on Organometallic Chemistry, Detroit, MI, August 1990.
  8. T.B. Marder, G. Lesley, Z. Yuan, H. Fyfe, P. Chow, G. Stringer, I. Jobe, N.J. Taylor, I.D. Williams and S.K. Kurtz, "Organics and Organometallics for Nonlinear Optics", invited lecture in the symposium on "Transition Metals in Organic Synthesis", 73rd Canadian Chemical Conference, Halifax, N.S., July 1990.
  7. T.B. Marder, G. Lesley, Z. Yuan, H. Fyfe, P. Chow, G. Stringer, I. Jobe, N.J. Taylor, I.D. Williams and S.K. Kurtz, "Transition Metal Acetylides for Nonlinear Optics", The Fifth Chemical Congress of North America, Boston, MA., USA, April 1990.
  6. G. Lesley, G. Stringer, Z. Yuan, I.R. Jobe, L. Koch, N.J. Taylor, T.B. Marder, I.D. Williams and S.K. Kurtz, "Synthesis and Characterization of Some Novel Platinum Acetylide Complexes and Preliminary Examination of the Second Order Nonlinear Optical Properties", 22nd Inorganic Discussion Weekend, St. Catharines, Ontario, Canada, October 1989.
  5. Z. Yuan, G. Lesley, I.R. Jobe and T.B. Marder, "Transition Metal Catalyzed Synthesis of Functionalized Ethynylarenes for Use in Nonlinear Optics", 22nd Inorganic Discussion Weekend, St. Catharines, Ontario, Canada, October 1989.
  4. H.B. Fyfe, P. Chow, G. Lesley, I.R. Jobe, D. Zargarian, N.J. Taylor and T.B. Marder, "Steps Towards the Synthesis of Rigid Rod Organometallic Polymers", 22nd Inorganic Discussion Weekend, St. Catharines, Ontario, Canada, October 1989.

3. T.B. Marder, P. Chow, D. Zargarian, G. Lesley, Z. Yuan, H. Fyfe, L. Koch, I. Jobe, I.D. Williams, G. Stringer and N.J. Taylor, "New Directions in Transition Metal  $\sigma$  -Acetylide Chemistry", N.S.F. Organometallic Workshop, San Diego, CA., June 1989.
2. G. Lesley, P. Chow, I. Jobe, Z. Yuan, H. Fyfe, L. Koch, I.D. Williams, N.J. Taylor and T.B. Marder, "New Directions in Transition Metal  $\sigma$  - Acetylide Chemistry", The Seventh Annual Graduate Student Symposium, The State University of New York at Buffalo, N. Y., May 1989.
1. P. Chow, I. Jobe, G. Lesley, L. Koch, I.D. Williams, N.J. Taylor and T.B. Marder, "The Synthesis and Characterization of Metal Acetylide Complexes with Conjugated  $\pi$  - Systems", 21st Inorganic Discussion Weekend, North York, Ontario, October 1988.

#### **RECENT GRANTS RECEIVED:**

1. (2008 - 2009) CSU Faculty Development Research Grant (PI; \$4300)
2. (March 2006) Shimadzu Instrumentation Grant (PI; \$47000)
3. (2004 - 2005) CSU Faculty Development Curriculum Grant (PI; \$4000)
4. (2003 – 2004) CSU IT Pilot Project/ CATAL Grant (PI; \$37800)
5. (2003 - 2004) CSU Faculty Development Research Grant (PI; \$3800)
6. (2003 - 2004) CSU Faculty Development Curriculum Grant (PI; \$4000)
7. (2001 - 2002) CSU Faculty Development Research Grant (PI; \$3750)

#### **RESEARCH INTERESTS IN GENERAL:**

Catalyzed and uncatalyzed hydroboration and diboration of unsaturated compounds leading to transition metal and/or boron containing polymers. Synthesis of novel ligands for the synthesis of metal organic framework (MOF) materials.

#### **STUDENT INVOLVEMENT IN RESEARCH/COLLABORATIONS:**

##### **Research Involving Graduate Students**

1. Lenora Toscano: "The Functionality Of Thin Tin Deposits as a Solderability Preservative For Printed Circuit Boards" (MS Thesis)
2. Mark Pineau: "The Synthesis and Characterization of Boron Containing Conducting Polymers"(MS Thesis)
3. Phil Joyce: "The Synthesis and Implementation of Titanium and Zirconium Based Metallocenes as Catalysts for the Living Free Radical Polymerization of Polystyrene" (MS Thesis)
4. Deborah Day: "The Synthesis and Solid State Characterization of Platinum Nanoparticles Encapsulated by Dithiolate Containing MNT Polymers" (MS Thesis)
5. David Nelson: "Synthesis and Reactivity of Aldiminoborane Dimers with Novel Hydroborating Reagents" ((MS Thesis, in progress)
6. Michael Taylor: "Development of a Purification Protocol for Aldiminoborane Dimers" (MS Thesis, in progress)
7. Colleen Welch: "Synthesis and Characterization of Benzonitrile Based Aldiminoborane Dimers" (MS Research)
8. Chrissy Hentinka: "Synthesis and Hydroboration Polymerization of Dicyanoferrocene (MS Research)
9. Dora Lau: "The Synthesis and Characterization of Iridium Chromophores Bound to Dithiolate Containing Polymers" (MS Research)
10. Coleen Flaherty: "Preparation of New Undergraduate Laboratory Experiments for Inorganic Chemistry" (MS Research)

11. Paty Morales: "Preparation of New Undergraduate Laboratory Experiments for Inorganic Chemistry" (MS Research)
12. Adam Letize: "Hydroboration Polymerization of Diethynylbenzenes Using Aldiminoborane Dimers" (MS Research)

### **Research Involving Undergraduate Students**

1. Stan Backiel: "The Synthesis and Characterization of Bis(benzyl)MNT Based Poly(cyclodiborazane) Derivatives" (Honors Thesis)
2. Alia Green: "The Synthesis of Multiply Bonded Molybdenum Dimers and Reactivity with Diborane(4) Compounds" (Senior Thesis)
3. Byron Peck-Collier: "The Synthesis of Biphenyl Derivatives as Ligands for MOF Preparation" (Honors Thesis)
4. Besnik Bajrami: "The Hydroboration Polymerization of Bis(benzyl)maleonitrile dithiolate" (BS Research)
5. John Kot: "The Palladium Catalyzed Synthesis of Aryl Acetylene Derivatives" (BS Research)
6. John Kot : "The Catalyzed Diboration of Phosphinoalkyne Derivatives" (BS Research)
7. Alia Green : "The Synthesis and Characterization of 4-methylbenzonitrile Based Aldiminoborane Dimers" (BS Research)

8. Cullin Mahon: "The Synthesis and Characterization of ortho-substituted Aryl Acetylene Derivatives" (BS Research)

## **Collaborations**

1. Dr. Allen Hunter (Youngstown State University); NSF X-ray Crystallography Consortium
2. Dr. Alex Asandei (University of Connecticut); Characterization of MNT-Based Polymers; Synthesis, Characterization, and Catalytic Reactivity of Ti(III) Complexes.
3. Dr. Steve Westcott (Mount Allison University, New Brunswick, Canada); The Catalytic Hydroboration and Diboration of Phosphinoacetylene and Phosphinoalkene Compounds.
4. Dr. Guy Crundwell (Central Connecticut State University); Implementation of CSU Intercampus IT Pilot Project/ X-ray Crystallography Consortium
5. Dr. Christine Broadbridge (Southern Connecticut State University, Dept. of Physics); Characterization of Platinum Nanoclusters Bound to MNT Based Polymers by TEM, AFM, and STM
6. Dr. Ian Williams (Hong Kong University of Science and Technology, Dept. of Chemistry): Synthesis of Ligands as Templates for Transition Metal Coordination Polymers.

## **DISSERTATION TITLE:**

Synthesis and Characterization Of Pt(II) Bis(Boryl) Compounds for the Catalytic Diboration of Alkynes and Diynes.

## **INSTITUTION GRANTING Ph.D.:**

University of Waterloo, Waterloo, Ontario, Canada