

LECTURE

Aluminium and ruthenium based catalysis

by

Asst Prof Dr Dragoslav Vidović

from *Nanyang Technological University, School of physical and mathematical sciences, Division of chemistry and biological chemistry, Singapore (NTU-SPMS-CBC, Singapore)*

Website: <http://www.ntu.edu.sg/home/dvidovic/Vidovic.html>

LOCATION AND TIME:

Faculty of Technology and Metalurgy, Karnegijeva 4, 11000 Belgrade, Serbia (public auditory, 3rd floor) at 10:00 A.M. on 15th December 2016.

Abstract

The synthesis of several well-defined Lewis acid compounds based on aluminium is discussed. These complexes have showed to be quite reactive catalysts for various Diels-Alder reactions. It was also discovered that a very subtle structural modification led to unprecedented polymerization of cyclic dienophiles. Furthermore, we were quite successful in identifying a ruthenium based complex capable of site-selective H/D exchange (deuteration) of polyunsaturated alkenes.

Lastly, this opportunity will be used to establish possible research cooperation and student exchange program between Faculty of Technology and Metallurgy (Belgrade, Serbia) and NTU (Singapore).

Biography



Dr. Drasko Vidović started his pursue of chemistry at Simon Fraser University, Canada, during which time his undergraduate research projects were supervised by [Prof. Danniell Leznoff](#) and [Prof. Jason Clyburne](#) (currently at St. Mary's University, Halifax, Canada). He then moved to the University of Texas, Austin, for graduate studies under [Prof. Alan Cowley](#), FRS. After obtaining his PhD degree in 2007 he joined [the Aldridge group](#) at the University of Oxford as an EPSRC post-doctoral research fellow. While at Oxford he was also appointed as a College Lecturer at the [St. John's College](#) in 2008. Dr. Vidovic started his first independent academic position at NTU at the end of 2010 and his teaching duties include [Forensic Science](#) and [Green Chemistry](#) modules for undergraduates and Graduate Seminar modules.

Dragoslav Vidović (Curriculum Vitae)

Contact Details

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Education

- 2002-2007 **University of Texas at Austin, USA**
PhD (Inorganic Chemistry).
Research Thesis: "*The Chemistry of β -Diketiminato-Supported Boron, Aluminum, Gallium and Phosphorus Compounds*".
Advisor: Prof Alan H. Cowley
- 1998-2002 **Simon Fraser University, Vancouver, Canada**
B.Sc. (Inorganic Chemistry).
B.Sc. Project Advisors: Prof Jason A. C. Clyburne and Prof Daniel B. Leznoff.

Work History

- 2010-present **Nanyang Technological University, Singapore.**
Assistant Professor.
Research Area: *Organometallic and Main Group Chemistry*.
Courses Taught: Graduate Research Module CBC729
Forensic Science CM8002.
Green Chemistry CM9093.
Inorganic and Bioinorganic chemistry CM2021.
- 2007-2010 **University of Oxford, UK**
Postdoctoral Research Fellow with Prof Simon Aldridge.
Research Area: "*Transition metal boron chemistry*".
- 2008-2010 **St. John's College, University of Oxford, UK**
College Lecturer.
Tutor for 1st, 2nd and 3rd year undergraduate chemistry students at the St. John's College.
- 2002-2007 **University of Texas at Austin, USA**
Teaching Assistant.
Served as a teaching assistant for all levels of lecture and laboratory undergraduate courses.
- 2001-2002 **Simon Fraser University**
Research Assistant.
Synthesis of numerous inorganic and organometallic compounds in Clyburne and Leznoff research groups.

Patents:

1. "Site-specific isotopic labeling of 1,4-diene systems." Shchepinov, M. S.; Vidović, D. *U.S. Provisional Application No. 62/258,993*.

Publications

ResearcherID: B-6953-2011

ORCID: 0000-0003-4269-3995

1. "Full library of (*bis*-allyl)-deuterated arachidonic acids: synthesis and analytical verification." Fomich, M. A.; Bekish, A. V.; Vidovic, D.; Lamberson, C. R.; Lysenko, I. L.; Lawrence, P.; Brenna, J. T.; Sharko, O. L.; Shamani, V. V.; Shchepinov, M. S. *ChemistrySelect* **2016**, *1*, 4758.
2. "Bis(carbodicarbene)phosphenium trication: A case against hypervalency" N. Đorđević, R. Ganguly, M. Petković, D. Vidović, *Chem. Commun.* **2016**, *52*, 9789.
3. "Preparation, structural analysis, and reactivity studies of phosphenium dications" Tay, M. Q. Y.; Ilić, G.; Warner-Zwanziger, U.; Lu, Y.; Ganguly, R.; Ricard, L.; Frison, G.; Carmichael, D.; Vidović, D. *Organometallics*, **2016**, *35*, 439. This work was featured as the **front cover** for the Feb 22nd (vol 35, issue 4) issue.
4. "Oxidation of a P-C bond under mild conditions" Ilić, G.; Ganguly, R.; Petković, M.; Vidović, D. *Chem. Eur. J.* **2015**, *21*, 18594.
5. "A well-defined aluminium-based Lewis acid as an efficient catalyst for Diels-Alder transformations: Liu, Z.; Lee, J. H. Q.; Ganguly, R.; Vidović, D. *Chem. Eur. J.* **2015**, *21*, 11344.
6. "Extending the chemistry of carbones: P-N bond cleavage via an S_N2' mechanism" Gurnani, C.; Đorđević, N.; Mutthaiah, S.; Dimić, D.; Ganguly, R.; Petković, M.; Vidović, D. *Chem. Commun.* **2015**, *51*, 10762.
7. "Building a Lewis Acidic Phosphorus" Tay, M. Q. Y.; Lu, Y.; Ganguly, R.; Frison, G.; Ricard, L.; Vidovic, D.; Carmichael, D. *Phosphorus, Sulfur Silicon Relat. Elem.* **2015**, *190*, 785;
8. "C-F activation by transient phosphenium dications" Đorđević, N.; Tay, M. Q. Y.; Mutthaiah, S.; Ganguly, R.; Petković, M.; Vidović, D. *Inorg. Chem.* **2015**, *54*, 4180.
9. "A Dicationic Iminophosphane". Loh, Y. K.; Gurnani, C.; Ganguly, R.; Vidović, D. *Inorg. Chem.* **2015**, *54*, 3087.
10. "Iminoborylene complexes: evaluation of synthetic routes towards BN-allenylidenes and unexpected reactivity towards carbodiimides" Niemeyer, J.; Kelly, M. J.; Riddlestone, I. M.; Vidovic, D.; Aldridge, S. *Dalton Trans.* **2015**, *44*, 11294.
11. "Dihaloborenium cations stabilized by a four-membered N-heterocyclic carbene: Electron deficiency compensation by asymmetric structural changes". Tay, M. Q. Y.; Murugesapandian, B.; Lu, Y.; Rakesh, G.; Kinjo, Rei; Vidović, D. *Dalton Trans.* **2014**, *43*, 15313.

12. "Synthesis of N-Heterocyclic Carbene Stabilized Catecholoborenium Cations by Ligand Substitution". Do, D. C. H.; Muthaiah, S.; Ganguly, R.; Vidović, D. *Organometallics*, **2014**, *33*, 4165.
13. "Isolation of a Bis(oxazol-2-ylidene)-Phenylborylene Adduct and its Reactivity as a Boron-Centered Nucleophile". Kong, L.; Li, Y.; Ganguly, R.; Vidovic, D.; Kinjo, R. *Angew. Chem. Int. Ed.* **2014**, *53*, 9280.
14. "1,2,4,3-Triazaborole-based neutral oxoborane stabilized by a Lewis acid". Loh, Y. K.; Chong, C. C.; Ganguly, R.; Li, Y.; Vidovic, D.; Kinjo, R. *Chem. Commun.* **2014**, *50*, 8561.
15. "Oxidative Addition of Water and Methanol to a Dicationic Trivalent Phosphorus Centre". Tay, M. Q. Y.; Lu, Y.; Ganguly, R.; Vidović, D. *Chem. Eur. J.* **2014**, *20*, 6628.
16. "Synthesis and Characterization of Terpyridine-Supported Boron Cations: Evidence for Pentacoordination at Boron". McGovern, G. P.; Zhu D.; Aquino A. J. A.; Vidović, D.; Findlater, M. *Inorg. Chem.* **2013**, *52*, 13865.
17. "Counterion Dependence on the Synthetic Viability of NHC-Stabilized Dichloroborenium Cations". Muthaiah, S.; Do, D. C. H.; Ganguly, R.; Vidović, D. *Organometallics*, **2013**, *32*, 6178. Paper invited for the special issue of *Organometallics* entitled "Applications of Electrophilic Main Group Organometallic Molecules"
18. "Synthesis and Anion Binding Capabilities of Bis(diarylboryl) Ferrocenes and Related Systems". Kelly, M. J.; Broomsgorve, A. E. J.; Morgan, I. R.; Siewert, I.; Fitzpatrick, P.; Smart, J.; Vidovic, D.; Aldridge, S. *Organometallics*, **2013**, *32*, 2674.
19. "Substituent effects on iron boryl and borylene systems: Unusual reactivity and spectroscopic properties". Addy, D.; Bates, J. I.; Vidovic, D.; Aldridge, S. *J. Organomet. Chem.* **2013**, *745-746*, 487.
20. "A Carbene-Stabilized Two-Coordinate Phosphorus(III)-Centered Dication". Tay, M. Q. Y.; Lu, Y.; Ganguly, R.; Vidović, D. *Angew. Chem. Int. Ed.* **2013**, *52*, 3132.
21. "Salt metathesis for the synthesis of M-Al and M-H-Al bonds". Riddlestone, I. M.; Urbano, J.; Phillips, N.; Kelly, M. J.; Vidovic, D.; Bates, J. I.; Taylor, R.; Aldridge, S. *Dalton Trans.* **2013**, *42*, 249.
22. "Interaction of In(I) and Tl(I) with 2,6-Diaryl Pyridine Ligands: Cation Encapsulation within a very Weakly Interacting N/Arene Host environment". Mansaray, H. B.; Tang, C. Y.; Vidovic, D.; Thompson, A. L.; Aldridge, S. *Inorg. Chem.* **2012**, *51*, 13017.
23. "A Stable Two-Coordinate Acyclic Silylene". Protchenko, A. V.; Birjkumar, K. H.; Dange, D.; Schwarz, A. D.; Vidovic, D.; Jones, C.; Kaltsoyannis, N.; Mountford, P.; Aldridge, S. *J. Am. Chem. Soc.* **2012**, *134*, 6500. **Highlighted** in *Nature* **2012**, *485*, 49.
24. "(Dimethylamino)borylene and Related Complexes of Electron-Rich Metal Fragments: Generation of Nucleophile-Resistant Cations by Spontaneous Halide Ejection". Addy, D. A.; Phillips, N.; Pierce, G. A.; Vidovic, D.; Kramer, T.; Mallick, D.; Jemmis, E. D.; Reid, G.; Aldridge, S. *Organometallics*, **2012**, *31*, 1092.

25. "Probing the influence of steric bulk on anion binding by triarylboranes: comparative studies of FcB(o-Tol)₂, FcB(o-Xyl)₂ and FcBMes₂". Siewert, I.; Fitzpatrick, P.; Broomsgrove, A. E. J.; Kelly, M.; Vidovic, D.; Aldridge, S. *Dalton Trans.* **2011**, 40, 10345.
26. "Extending the Chain: Synthetic, Structural, and Reaction Chemistry of a BN Allenylidene Analogue". Niemeyer, J.; Addy, D. A.; Riddlestone, I.; Kelly, M.; Thompson, A. L.; Vidovic, D.; Aldridge, S. *Angew. Chem. Int. Ed.* **2011**, 50, 8908. This article has been selected as a 'hot article' by Angewandte Chemie
27. "Syntheses of homochiral 1,2-ferrocene-functionalized Lewis acids and acid/base pairs". Siewert, I.; Vidovic, D.; Aldridge, S. *J. Organomet. Chem.* **2011**, 696, 2528.
28. "Probing the intrinsic structure and dynamics of aminoborane coordination at late transition metal centers: η^1 -binding in [CpRu(PR₃)₂(H₂BNCy₂)]⁺". Vidovic, D.; Addy, D.; Krämer, T.; McGrady, J.; Aldridge, S. *J. Am. Chem. Soc.* **2011**, 133, 8494.
29. "Annulations of isoquinoline and β -carboline ring systems: synthesis of 8-oxoprotoberberine derivatives". Husinec, S.; Savic, V.; Simic, M.; Tesevic, V.; Vidovic, D. *Tetrahedron Letters*, **2011**, 52, 2733.
30. "Tuning Main Group Redox Chemistry through Steric Loading: Subvalent Group 13 Metal Complexes of Carbazolyl Ligands". Mansaray, H. B.; Kelly, M.; Vidovic, D.; Aldridge, S. *Chem. Eur J.* **2011**, 17, 5381.
31. "Coordination chemistry of group 13 monohalides" Vidovic, D.; Aldridge, S. *Chem. Sci.* **2011**, 2, 601. This work was amongst the **top ten accessed** articles from the online version of *Chemical Science* during the month of Feb 2011.
32. "Responses to unsaturation in iridium mono(N-heterocyclic carbene) complexes: synthesis and oligomerization of [Llr(H)₂Cl] and [Llr(H)₂]⁺". Tang, C. Y.; Lednik, J.; Vidovic, D.; Thompson, A. L.; Aldridge, S. *Chem. Commun.* **2011**, 47, 2523.
33. "Iridium-mediated borylation of benzylic C—H bonds by borohydride" Tang, C. Y.; Smith, W.; Thompson, A. L.; Vidovic, D.; Aldridge, S. *Angew. Chem. Int. Ed.* **2011**, 50, 1359. This paper was selected as a 'hot article' by Angewandte Chemie
34. "Isotope-reinforced polyunsaturated fatty acids protect yeast cells from oxidative stress." Hill, S.; Hirano, K.; Shmanai, V.V.; Marbois, B. N.; Vidovic, D.; Bekish, A. V.; Kay, B.; Tse, V.; Fine, J.; Clarke, C. F.; Shchepinov, M. S. *Free. Radic. Biol. Med.* **2011**, 50, 130. This work was **featured** in the 29. October 2010 (#2784) issue of the *New Scientist* magazine.
35. "Synthesis, characterization and structural analysis of new copper(II) complexes incorporating a pyridoxal-semicarbazone ligand". Vidovic, D.; Radulovic, A.; Jevtovic, V. *Polyhedron* **2011**, 30, 16.
36. "Contrasting reactivity of anionic boron- and gallium-containing NHC analogues: E-C vs. E-M bond formation (E = B, Ga)". Protchenko, A. V.; Saleh, L. M. A.; Vidovic, D.; Dange, D.; Jones, C.; Mountford, P.; Aldridge, S. *Chem. Commun.* **2010**, 46, 8546. Featured as the **inside cover** for the issue.

37. "Anion recognition by highly sterically encumbered 1,2-diborylferrocenes". Morgan, I. R.; Broomsgrove, A. E. J.; Fitzpatrick, P.; Vidovic, D.; Thompson, A. L.; Fallis, I. A.; Aldridge, S. *Organometallics*, **2010**, 29, 4762.
38. "Synthesis, Characterization and X-ray Crystal Structure of the Tri Aqua(3-Hydroxy-5-Hydroxymethyl-2-Methylpyridine-4-Carboxaldehyde-3-Methylisothiosemicarbazone: k^3 , O^3 , N^7 , N^{10}) Ni(II) Nitrate". Jevtovic, V.; Vidovic, D. *J. Chem. Cryst.* **2010**, 40, 794.
39. "Comparative Structural and Thermodynamic Studies of Fluoride and Cyanide Binding by PhBMes₂ and Related Triarylborane Lewis Acids". Bresner, C.; Haynes, C. J. E.; Addy, D. A.; Broomsgrove, A. E. J.; Fitzpatrick, P.; Vidovic, D.; Thompson, A. L.; Fallis, I. A.; Aldridge, S. *New J. Chem.* **2010**, 34, 1652.
40. "Generation of Cationic Two-Coordinate Group 13 Ligand Systems by Spontaneous Halide Ejection: Remarkably Nucleophile Resistant (Dimethylamino)borylene Complex". Addy, D. A.; Pierce, G. A.; Vidovic, D.; Malick, D.; Jemmins, E. D.; Goicoechea, J. M.; Aldridge, S. *J. Am. Chem. Soc.* **2010**, 132, 4586.
41. "Bis[4-(2-carbamoylhydrazin-1-ylidene- $\kappa^2 N^1, O$)-5-hydroxymethyl-2-methylpyridinium-3-olato- κO^3]cobalt(II) dinitrate dihydrate". Vidovic, D.; Jevtovic, V. *Acta Cryst.* **2010**, E66, m408.
42. "Synthesis and Structural Characterization of Terminal (Diisopropylamino)borylene Complexes of Group 8 Metals". Vidovic, D.; Pierce, G. A.; Coombs, N. D.; Kays, D. L.; Thompson, A. L.; Stach, A.; Aldridge, S. *Main Group Chem.* **2010**, 9, 57.
43. "Evaluation of electronics, electrostatics and hydrogen bond co-operativity in the binding of cyanide and fluoride by Lewis acidic ferrocenylboranes". Broomsgrove, A. E. J.; Addy, D. A.; DiPaolo, A.; Morgan, I. R.; Bresner, C.; Chislett, V.; Fallis, I. A.; Thompson, A. L.; Vidovic, D.; Aldridge, S. *Inorg. Chem.* **2010**, 49, 157.
44. "Facile Syntheses of Dissymmetric Ferrocene-Functionalized Lewis Acids and Acid/Base Pairs". Morgan, I. R.; Di Paolo, A.; Vidovic, D.; Fallis, I. A.; Aldridge, S. *Chem. Commun.* **2009**, 7288.
45. "Coordination and Activation of the BF₃ Molecule". Vidovic, D.; Aldridge, S. *Angew. Chem. Int. Ed.* **2009**, 48, 3669. **Highlighted** in: *Angew. Chem. Int. Ed.* **2010**, 49, 3412.
46. "Sterically Encumbered Iridium Bis(N-heterocyclic carbene) Systems: Multiple C-H Activation Processes and Isomeric Normal/Abnormal Carbene Complexes". Tang, C. Y.; Smith, W.; Vidovic, D.; Thompson, A. L.; Chaplin, A. B.; Aldridge, S. *Organometallics*, **2009**, 28, 3059.
47. "Half-Sandwich Group 8 Borylene Complexes: Synthetic and Structural Studies and Oxygen Atom Abstraction Chemistry". Pierce, G. A.; Vidovic, D.; Kays, D. L.; Coombs, N. D.; Thompson, A. L.; Jemmins, E. D.; De, S.; Aldridge, S. *Organometallics*, **2009**, 28, 2947.
48. "Reactivity of cationic terminal borylene complexes: novel mechanisms for insertion and metathesis chemistry involving strongly Lewis acidic ligand systems". De, S.; Pierce, G. A.; Vidovic, D.; Kays, D. L.; Coombs, N. D.; Jemmins, E. D.; Aldridge, S. *Organometallics*, **2009**, 28, 2961.

49. "Transition metal borylene complexes: boron analogues of classical organometallic systems" Vidovic, D.; Pierce, G. A.; Aldridge, S. *Chem. Commun.* **2009**, 1157.
50. "Cationic terminal gallylene complexes by halide abstraction: coordination chemistry of a valence isoelectronic analogue of CO and N₂". Coombs, N. D.; Vidovic, D.; Day, J. K.; Thompson, A. L.; Le Pevelen, D. D.; Stasch, A.; Clegg, W.; Russo, L.; Male, L.; Hursthouse, M. B.; Willock, D. J.; Aldridge, S. *J. Am. Chem. Soc.* **2008**, 130, 16111.
51. "Synthesis and Structures of Boron Dihalides supported by the C₆F₅-Substituted β-Diketiminato Ligand [HC(CMe)₂(NC₆F₅)₂]⁻". Vidovic, D.; Reeske, G.; Findlater, M.; Cowley, A. H. *Dalton Trans.* **2008**, 2293.
52. "Synthesis and Characterization of a β-Diketiminato-Supported Aluminum Dication" Vidovic, D.; Findlater, M.; Reeske, G.; Cowley, A. H. *J. Organomet. Chem.* **2007**, 692, 5683.
53. "A β-Diketiminato-Supported Boron Dication". Vidovic, D.; Findlater, M.; Cowley, A. H. *J. Am. Chem. Soc.* **2007**, 129, 8436. Erratum: *J. Am. Chem. Soc.* **2007**, 129, 11296.
54. "A single-bonded cationic terminal borylene complex". Vidovic, D.; Findlater, M.; Reeske, G.; Cowley, A. H. *Chem. Commun.* **2006**, 3786.
55. "An N,N'-Chelated Phosphenium Cation Supported by a β-Diketiminato Ligand". Vidovic, D.; Lu, Z.; Reeske, G.; Moore, J. A.; Cowley, A. H. *Chem. Commun.* **2006**, 3501.
56. "Lithium, Aluminum, and Gallium Complexes of the C₆F₅-substituted β-diketiminato ligand [HC(CMe)₂(NC₆F₅)₂]⁻". Vidovic, D.; Jones, J. N.; Moore, J. A.; Cowley, A. H. *Z. Anorg. Allg. Chem.* **2005**, 631, 2888.
57. "Synthesis and Characterization of a Coordinated Oxoborane: Lewis Acid Stabilization of a Boron-Oxygen Double Bond". Vidovic, D.; Jones, J. N.; Moore, J. A.; Cowley, A. H. *J. Am. Chem. Soc.* **2005**, 127, 4566. This work was featured in the March 28th, 2005 (Volume 83, Number 13, Page 35) issue of the ***Chemical and Engineering News***.
58. "Amine elimination synthesis of a titanium(IV) N-heterocyclic carbene complex with short intramolecular Cl—C carbene contacts". Shukla, P.; Johnson, J. A.; Vidovic, D.; Cowley, A. H.; Abernethy, C. D. *Chem. Commun.* **2004**, 4, 360.
59. "Unusual iron(III) ate complexes stabilized by Li-π interactions". Mund, G.; Vidovic, D.; Batchelor, R. J.; Bitten, J. F.; Sharma, R. D.; Jones, C. H. W.; Leznoff, D. B. *Chem. Eur J.* **2003**, 9, 4757.
60. "The coordination chemistry of o,o'-i-Pr₂C₆H₃-bis(imino)acenaphthene to Group 13 trihalides". Jenkins, H. A.; Dumaresque, C. L.; Vidovic, D.; Clyburne, J. A. C. *Can. J. Chem.* **2002**, 80, 1398.

Funding

1. Tier 1 grant titled "Catalytic synthesis and metabolism of site-specific deuterated essential fatty acids". Awarded in 2016, #M4011667, S\$ 100,000, PI.
2. *Retrotope, Inc.*, donation (\$US 10,000 in 2016, one-time, PI)
3. *Retrotope, Inc.*, donation (\$US 5,000 in 2014, one-time, PI)
4. *Public Sector Funding (PSF)* grant titled "Development of boron-based nucleophilic ligands and their application in the catalytic hydroamination with ammonia and parent hydrazine". Awarded in 2013, # 122-PSF-0015, \$S 732,000.00, Co-I.
5. A*STAR-MSHE joint grant call titled "Green and sustainable catalysts for chemical, agrochemical and pharmaceutical industry". Awarded in 2012, # 122 070 3062, \$S 489,474.00, PI.
6. *Retrotope, Inc.*, donation (\$US 5,000 in 2011, one-time, PI)

Student Awards

1. Gordana Ilic has won a **best poster presentation award** (Bangkok Bank Young Chemist Award) at the PACCON 2016, Bangkok, Thailand.
2. Loh Ying Kai (an undergraduate student) received the **2015 Undergraduate Award for the Chemical & Pharmaceutical Sciences** category for his work on capturing the dicationic phosphorus mononitride (*Inorg. Chem.* **2015**, 54, 3087). The student received a Gold Medal from the president of Ireland, Michael D. Higgins. The Undergraduate Awards (UA) is the world's largest academic awards programme, and often referred to as a "junior Nobel Prize".
3. Gordana Ilic has received a **poster award** at the ICPC 2014, Dublin, Ireland, on the chemistry of P-dications

Invited Talks/Lectures

1. "Aluminium and phosphorus based Lewis acids" Department of Chemistry, *Alan H. Cowley Retirement Symposium*, University of Texas, Austin, USA, **2015**.
2. "Aluminium and phosphorus based Lewis acids" Department of Chemistry, University of Houston, USA, **2015**.
3. "Lewis acids based on aluminium" Vidovic, D. *Asian Network for Natural and Unnatural Materials 3, Chandigarh, India, 2015*.
4. "Lewis acids based on aluminium and phosphorus" Vidovic, D.; Department of Chemistry, Imperial College, London, UK, **2014**.
5. "Lewis acids based on aluminium and phosphorus" Vidovic, D.; Department of Chemistry, University of Cambridge, UK, **2014**.
6. "Lewis acids based on aluminium and phosphorus" Vidovic, D.; Department of Chemistry, University of Oxford, UK, **2014**.
7. "Lewis acids based on aluminium and phosphorus" Vidovic, D.; Department of Chemistry, University of Warsaw, Poland, **2014**.
8. "Synthetic, structural and reactivity investigations of boron and phosphorus cationic compounds". Vidovic, D.; Senthikumar, M.; Tay, M.; Cao, D. D. H. *Asian Network for Natural and Unnatural Materials II, Singapore, 2012*.
9. "Catalytic and Stoichiometric Deuteration of the bis-allylic positions of polyunsaturated fatty acids". *2nd Ecole Polytechnique-NTU Workshop, 2012*.
10. "Group 13 analogues of classical organometallic ligands". *ICES, Singapore, 2011*.
11. "Mono(σ -B—H) Coordination of Boranes at Unsaturated Ruthenium Centers". *RSC Main Group Chemistry Discussion Meeting, Oxford, 2010*.
12. "Group 13 Chemistry". *School of Physical & Biological Chemistry, Nanyang Technological University, Singapore, 2010*.
13. "Group 13 analogues of the classical organometallic ligands". *42nd IUPAC Congress, Glasgow, 2009*.
14. "Group 13 analogues of the classical organometallic ligands". *University of Belgrade, Faculty of Chemistry, 2009*.

15. "Low Coordinate Boron Chemistry". *Boron Chemist Award Presentation, ImeBoron, Spain, 2008.*
16. Synthesis and Reactivity of Terminal Borylene Complexes". *ImeBoron, Spain, 2008.*
17. "The Chemistry of Boron Aluminum, Gallium and Phosphorus Compounds". *University of Belgrade, Faculty of Chemistry, 2007.*
18. "Terminal Borylene and Group 13 Triflate Chemistry". University of Texas at Austin, **2007.**

Conference Papers

1. "Synthesis and reactivity of phophenium dications" A. C. S. Boston, USA, **2015.**
2. "The synthesis and reactivity of a phosphorus(III) dication" *Royal Australian Chemical Institute National Congress, Adelaide, Australia, 2014.*
3. "Lewis Acidic Phopshours" Tay, M. Q. Y. Tay; Vidovic, D. XXIV. *International Conference on Coordination and Bioinorganic Chemistry (ICCBIC), Smolenice, Slovakia, 2013.*
4. "Development of organometallic catalysts for site specific H/D exchange". Vidovic, D.; Kudlaev, A. *Frontiers of Organometallic Chemistry (FOC), St. Petersburg, Russia, Abstract 2012.*
5. "Synthetic, structural and reactivity investigations of aluminium bistriflate complexes" Vidovic, D.; Lee, H. Q. J.; Senthilkumar, M. *Catalysis in Organic Synthesis (ICCOS), Moscow, Russia, Abstract 2012.*
6. "Coordination and activation of B-H bonds in amineborane at late transition metal centers". Tang, C.; Vidovic, D.; Addy, D. A.; Aldridge, S. *Southeast regional Meeting of A. S. C. New Orleans, USA, Abstract 2010.*
7. "Novel modes of reactivity for cationic terminal borylene complexes". Vidovic, D.; Pierce, G. A.; Aldridge, S. A.C.S. *Salt Lake City, Abstract 2009.*
8. "Deconvolution of steric, electronic, electrostatic and cooperative hydrogen bonding effects in anion binding by Lewis acidic ferrocenylboranes". Vidovic, D.; Broomsgrove, A. E. J.; Bresner, C.; Morgan, I. R.; Fallis, I. A.; Aldridge, S. A.C.S. *Salt Lake City, Abstract 2009.*
9. "Synthesis and application of novel sterically demanding amido ligands in main group chemistry". Vidovic, D.; Mansaray, H. B.; Aldridge, S. A.C.S. *Salt Lake City, Abstract 2009.*
10. "Studies of the structures and transition metal mediated dehydrogenation of ammonia-borane and related methylamine derivatives". Vidovic, D.; Tang, C. Y.; William, S.; Aldridge, S. A.C.S. *Salt Lake City, Abstract 2009.*
11. "Synthesis and Reactivity of Terminal Borylene Complexes". Vidovic, D.; Pierce, G.; Aldridge, S. *ImeBoron, Spain, Abstract 2008.*
12. "Synthesis and Reactivity of Terminal Borylene Complexes". Vidovic, D.; Pierce, G.; Aldridge, S. *Main Group Conference, Bristol, Abstract 2008.*
13. "Phosphine-Iron and -Ruthenium Terminal Borylene Complexes". Pierce, G.; Vidovic, D.; Aldridge S. *Anglo-german Conference, Cardiff, Abstract 2008.*
14. "Low Coordinate Boron and Phosphorus Chemistry". Vidovic, D.; Cowley, A. H A.C.S. *San Francis, Abstract 2006.*

Awards and Recognitions

July 2008	Young Boron Chemist Award (5 th place) ImeBoron Conference, Spain.
January 2008	Postdoctoral Research Fellowship awarded by Engineering and Physical Sciences Research Council, UK
January 2007	Nominated for the Dissertation Award at University of Texas at Austin.
August 2006	Houston Endowment President's Excellence Scholarship, University of Texas at Austin
September 2005	Faraday Teaching Award, University of Texas at Austin.
June 2005	Welch Research Fellowship, University of Texas at Austin.
May 2004	International Scholarship, University of Texas at Austin.