Curriculum Vitae
Titel Jurca, Ph.D.
Assistant Professor,
Department of Chemistry &
Rational Design of Catalysts for Energy Applications and Propulsion Cluster
University of Central Florida
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H-index: **15** (*Google Scholar*)**; 13** (*Web of Science*)

Education

- B.Sc. Chemistry with Honours, University of Ottawa, Ottawa, Ontario, Canada, **2003-2008**
- Ph.D. Chemistry, University of Ottawa, Ottawa, Ontario, Canada, **2008-2012**
- Marie Curie Postdoctoral Fellow, University of Bristol, Bristol, United Kingdom, **2012-2015**
- Postdoctoral Fellow, Northwestern University, Evanston, Illinois, USA, Nov. **2015-2017**

Research Experience

- Research Assistant, **University of Ottawa**, Ottawa, Ontario, Canada, **Prof. Deryn E. Fogg**, January 2007-April 2007.
- Research Assistant, **University of Windsor**, Windsor, Ontario, Canada, **Prof. Douglas W. Stephan**, May 2007-August 2007.
- Ph.D. research, **University of Ottawa**, Ottawa, Ontario, Canada, **Prof. Darrin S. Richeson**, May 2008-July 2012
- NSERC Michael Smith Foreign Study exchange program (Taiwan), **Academia Sinica**, Taipei, Taiwan, **Prof. Tiow-Gan Ong**, June 2011-August 2011.
- Marie Curie Postdoctoral Fellow, **University of Bristol**, Bristol, United Kingdom, **Prof. Ian Manners**, September 2012-October 2015.
- Postdoctoral Fellow, **Northwestern University**, Evanston, USA, **Prof. Tobin J. Marks**, November 2015-July 2017.

Journal Articles: Published and Submitted (♣ = *ESI highly cited paper, * = corresponding author*)

Independent Publications Prior to UCF

1. "Control of the Instrinsic Sensor Response to Volatile Organic Compounds in Fringing Electric Fields" A. Henning, N. Swaminathan, Y. Vaknin, **T. Jurca**, K. Shimanovich, G. Shalev, Y. Rosenwaks, *submitted*
2. "Carbodicarbenes: Unexpected π-Accepting Ability during Re-activity with Small Molecules" W.-C. Chen, W.-C. Shih, **T. Jurca**, L. Zhao, D. M. Andrada, C.-J. Peng, C.-C. Chang, S.-K. Liu, Y.-P. Wang, Y.-S. Wen, G. P. A. Yap, C.-P. Hsu, G. Frenking, T.-Gan Ong *J. Am. Chem. Soc.* **2017**, 139, 12830.
3. "Effect of Varying Chain Length of n-alcohols and n-alkanes Detected with Electrostatically-formed Nanowire Sensor" N. Swaminathan, A. Henning, **T. Jurca**, G. Shalev, Y. Rosenwaks, *Sensors and Actuators B: Chemical,* **2017**, 248, 240.
4. "Expanding Ligand Framework Diversity of Carbodicarbenes and Direct Observation of Boron Activation in Methylation of Amines with CO_2" W.-C. Chen, J.-S. Shen, **T. Jurca**, C.-J. Peng, Y.-H. Lin, Y.-P. Wang, W.-C. Shih, G. P. A. Yap, T.-G. Ong. *Angew. Chem. Int. Ed.* **2015**, 54, 15207.

Postdoctoral, Ph.D. and Undergraduate Research

1. "Synthesis, Characterisation, and Properties of Poly(aryl)phosphinoboranes Formed via Iron-catalysed Dehydropolymerisation" J. R. Turner, D. A. Resendiz-Lara, **T. Jurca**, A. Schafer, J. R. Vance, L. Beckett, G. R. Whittell, R. A. Musgrave, H. A. Sparkes, I. Manners, ***in press*** *Macromolecular Chemistry and Physics (manuscript ID macp.201700120)*
2. "Efficient Carbon-Supported Heterogeneous Molybdenum-Dioxo Catalyst for Chemoselective Reductive Carbonyl Coupling" S. Liu, J. Li, **T. Jurca**, T. L. Lohr, P. C. Stair, T. J. Marks, *Catal. Sci. Technol.***2017**, 7, 2165.

3. "Low-Temperature Atomic Layer Deposition of MoS_2 Films" **T. Jurca**†, M. J. Moody†, A. Henning, B. Wang, J. D. Emery, J. M. Tan, T. L. Lohr, L. J. Lauhon, T. J. Marks, *Angew. Chem. Int. Ed.* **2017**, 56, 4991. ("†" *equally contributing authors*)
4. "Second-Generation Hexavalent Molybdenum Oxo-Amidinate Precursors for Atomic Layer Deposition" **T. Jurca**, A. W. Peters, A. R. Mouat, O. K. Farha, J. T. Hupp, T. L. Lohr, M. Delferro, T. J. Marks, *Dalton Trans.* **2017**, 46, 1172.
5. "Structural and Electronic Trends for Five Coordinate 1st Row Transition Metal Complexes: Mn(II) to Zn(II) Captured in a Bis(iminopyridine) Framework" **T. Jurca**, S. Ouanounou, W.-C. Shih, T.-G. Ong, I. Korobkov, S. Gorelsky, D. S. Richeson, *Dalton Trans.* **2016**, 45, 14327.
6. "A Convenient Route to Mono-alkyl Substituted Phosphanylboranes HRP-BH_2-NMe_3, Prospective Precursors to Poly(alkylphosphinoboranes)" A. Stauber, **T. Jurca**, C. Marquardt, M. Fleischmann, M. Seidl, G. R. Whittell, I. Manners, M. Scheer, *Eur. J. Inorg. Chem*. **2016**, 17, 2684.
7. "Employing Sterically Encumbered Bis(imino)pyridine Ligands in Support of *fac*-Rhenium(I) Carbonyls" **T. Jurca**, O. Ramadan, I. Korobkov, D. S. Richeson, *J. Organomet. Chem.* **2016**, 802, 27.
8. "Aluminum Borate Nanowires from the Pyrolysis of Polyaminoborane Precursors" V. A. Du†, **T. Jurca**†, G. R. Whittell, I. Manners, *Dalton Trans.* **2016**, 45, 1055. ("†" *equally contributing authors*)
9. "B-Methylated Amine-Boranes: Substituent Redistribution, Catalytic Dehydrogenation, and Facile Metal-Free Hydrogen Transfer Reactions" N. E. Stubbs, A. Schäfer, A. P. M. Robertson, E. M. Leitao, **T. Jurca**, H. A. Sparkes, C. H. Woodall, M. F. Haddow, I. Manners, *Inorg. Chem.* **2015**, 54, 10878.
10. "Metal-Free Addition/Head-to-Tail Polymerization of Transient Phosphinoboranes, RPH-BH_2: A Route to Poly(alkylphosphinoboranes)" C. Marquardt†, **T. Jurca**†, K.-Ch. Schwan, A. Stauber, A. V. Virovets, A. Y. Timoshkin, G. R. Whittell, I. Manners, M. Scheer, *Angew. Chem. Int. Ed*., **2015**, 54, 13782. ("†" *equally contributing authors, designated "VIP" and featured as cover article*)
11. "Iron-Catalyzed Dehydropolymerisation: A Convenient Route to Polyphosphinoboranes with Molecular Weight Control" A. Schäfer†, **T. Jurca**†, J. Turner, J. R. Vance, K. Lee, V. A. Du, M. F. Haddow, G. R. Whittell, I. Manners, *Angew. Chem. Int. Ed*., **2015**, 54, 4836. ("†" *equally contributing authors, "Hot Paper"*)
12. "The Effect of Phosphine Steric and Electronic Profile on the Rh-promoted Dehydrocoupling of Phosphine-Boranes" T. N. Hooper, M. A. Huertos, **T. Jurca**, S. D. Pike, A. S. Weller, I. Manners*, Inorg. Chem.*, **2014**, 53, 3716.
13. "The Tipping Point of the Inert Pair Effect: Experimental and Computational Comparison of In(I) and Sn(II) bis(imino)pyridine Complexes" **T. Jurca**, L. K. Hiscock, C. N. Rowley, D. S. Richeson, *Dalton Trans.*, **2014**, 43, 690.
14. "Catalysis in Service of Main Group Chemistry Offers a Versatile Approach to p-block Molecules and Materials" E. M. Leitao†, **T. Jurca**†, I. Manners, *Nat. Chem.,* **2013***,* 5, 817.("†" *equally contributing authors*)
15. "Polyaminoborane scission into donor-stabilised monomeric aminoborane adducts using N-heterocyclic carbenes" N. E. Stubbs, **T. Jurca**, E. M. Leitao, I. Manners, *Chem. Commun.,* **2013**, 49, 9098.
16. "Mechanisms of the Thermal and Catalytic Redistributions, Oligomerizations, and Polymerizations of Linear Diborazanes" A. P. M. Robertson, E. M. Leitao, **T. Jurca**, M. F. Haddow, H. Helten, G. C. Lloyd-Jones, I. Manners, *J. Am. Chem. Soc.* **2013**, 135, 12670.
17. "Non-Covalent Interactions of Metal Cations and Arenes Probed with Thallium(I) Complexes" **T. Jurca,** I. Korobkov, S. I. Gorelsky, D. S. Richeson. *Inorg. Chem.* **2013**, 52, 5749.
18. "Solid-State Thermolysis of a ***fac***-Rhenium(I) Carbonyl Complex with a Redox Non-Innocent Pincer Ligand" **T. Jurca**, W. C. Chen, S. Michel, I. Korobkov, T. G. Ong, D. S. Richeson, *Chem. Eur. J.*, **2013**, 19, 4278.
19. "The 2,2'-Diindolylmethane Dianion Supporting Scaffold for Group 15 Compounds" I. Mallov, H. Spinney, **T. Jurca**, S. I. Gorelsky, T. J. Burchell, D. S. Richeson, *Inorg. Chim. Acta,* **2012**, 392, 5.
20. "The Interplay of Metal and Supporting Ligand in Labile Coordination to Pincer Complexes of Ag(I)" **T. Jurca**, S. Ouanounou, I. Korobkov, S. I. Gorelsky, D. S. Richeson, *Dalton Trans.,* **2012**, 41,4765. (*Cover article*)
21. "Using $^{69/71}$Ga Solid-State NMR and ^{127}I NQR as Probes to Elucidate the Composition of "GaI"" C. M. Widdifield, **T. Jurca**, D. S. Richeson, D. L. Bryce, *Polyhedron*, **2012**, 35, 1, 96.
22. "Subtle Reactivities of Boron and Aluminum Complexes with Amino Linked N-Heterocyclic Carbene Ligation" C. C. Tai, Y. T. Chang, **T. Jurca**, G. P. A. Yap, T. G. Ong, *Organometallics*, **2012**, 31, 2, 637.
23. ♣"Single-Molecule Magnet Behavior with a Single Metal Center Enhanced Through Peripheral Ligand Modifications" **T. Jurca**, A. Farghal, P. H. Lin, I. Korobkov, M. Murugesu, D. S. Richeson, *J. Am. Chem. Soc.*, **2011**, 133, 15814. (*Highlighted in ACS Quantum Molecular Magnet Issue, Inorg. Chem. 2012, 51, 12055*)

24. "Novel Pincer Complexes of Ag(I), Coordination of Toluene and their Comparison with Indium Analogues" **T. Jurca**, S. I. Gorelsky, I. Korobkov, D. S. Richeson, *Dalton Trans.,* **2011**, 40, 4394.
25. "Harnessing Low-Valent Metal Centers through Non-Bonding Orbital Interactions" **T. Jurca**, I. Korobkov, G. P. A. Yap, S. I. Gorelsky, D. S. Richeson, *Inorg. Chem.,* **2010**, 49 (22), 10635.
26. "Multinuclear Solid-State Magnetic Resonance Study of In^+ and Ag^+ in Neutral Weakly Coordinating Environments" A. Y. H. Lo, **T. Jurca**, D. S. Richeson, D. L. Bryce, *J. Phys. Chem. Let.* ,**2010***,* 1, 3078.
27. "Disproportionation and radical formation in the coordination of "GaI" with bis(imino)pyridines" **T. Jurca**, K. Dawson, I. Mallov, T. Burchell, G. P. A. Yap, D. S. Richeson, *Dalton Trans.,* **2010***,* 39, 1266.
28. "Capturing In^+ Monomers in a Neutral Weakly Coordinating Environment" **T. Jurca**, J. Lummiss, T. J. Burchell, S. I. Gorelsky, D. S. Richeson, *J. Am. Chem. Soc.,* **2009**, 131, 4608.
29. "Time as a Dimension in High-Throughput Homogeneous Catalysis" J.M. Blacquiere, **T. Jurca**, J. W. E. Weiss, D. E. Fogg, *Advanced Synthesis and Catalysis*, **2008**, 350, 2849.
30. ♣"Lewis Acid-catalyzed Hydrogenation: $B(C_6F_5)_3$-mediated Reduction of Imines and Nitriles with H_2" P. A. Chase, **T. Jurca**, D. W. Stephan, *Chem. Commun*. **2008**, 1701. (*Designated "Hot Article"*).
31. ♣"Metal-Free Catalytic Hydrogenation" P. A. Chase, G. C. Welch, **T. Jurca**, D.W. Stephan, *Angew. Chem. Int. Ed.*. **2007**, 46, 8050. (*Designated "VIP", featured as cover article, and highlighted in C&EN News Sept 6th 2007*)

Awards, Scholarships, and Distinctions (*all values converted to USD at current rate*)

13 awards totalling $380 000.00

1. **2013: Marie Curie International Incoming Fellowship:** *Criteria:* Awarded to postdoctoral researchers with a history of research excellence, who display research potential, as well as strong communication and leadership qualities. ***Value:* €221 606/$237 000 over 24 months.** (13% success rate)
2. **2012: University of Ottawa, Faculty of Graduate and Postdoctoral Studies Dean's Scholarship.** *Criteria:* Awarded to students who complete the requirements of a Ph.D. within 4 years. *Value:* $3 600.
3. **2011: Natural Sciences and Engineering Research Council of Canada Michael Smith Foreign Study Supplement – Taiwan.** *Criteria:* Awarded to students with high academic standing and research excellence to conduct research within and represent Canada in Taiwan. ***One of only seven recipients across all the sciences, and the only representative in the field of chemistry***. *Value:* $5 400.
4. **2010: Natural Sciences and Engineering Research Council of Canada, Postgraduate Scholarship Doctoral (PGS D3).** *Criteria:* Awarded to students with high academic standing, a history of research excellence, who display research potential, as well as strong communication and leadership qualities. Awarded to less than 10% of graduate students across Canada. *Value:* $56 700 over 36 months.
5. **2009: University of Ottawa Graduate Admission Scholarship, Ph.D.** *Criteria:* Awarded to students with excellent academic standing. *Value:* $32 400 over 48 months. (minimum of 80% average required)
6. **2009: University of Ottawa National Excellence Scholarship, M.** *Criteria:* Awarded to students with excellent academic standing who have received a CGS level NSERC award. *Value:* $5 400.
7. **2009: Natural Sciences and Engineering Research Council of Canada, Alexander Graham Bell Canada Graduate Scholarship M (CGS M).** *Criteria:* Awarded to students in sciences with high academic standing who display research potential, as well as strong communication and leadership qualities. Awarded to less than 10% of graduate students across Canada. *Value:* $15 750 over 12 months.
8. **2009: Ontario Graduate Scholarship (OGS).** *Criteria:* Awarded to students with high academic standing who display research potential, as well as strong communication and leadership qualities. Awarded to less than 20% of graduate students across Canada. *Value:* $9 000 over 12 months - *Declined*.
9. **2008: University of Ottawa Graduate Admission Scholarship, M.Sc.** *Criteria:* Awarded to students with excellent academic standing in their undergraduate studies. *Value:* $10 800 over 24 months. (minimum of 80% average required)
10. **2008: University of Ottawa Dean's Honour List – Merit Scholarship.** *Criteria:* Awarded to students who displayed excellent academic standing in the final year of their undergraduate degree. *Value:* $450.
11. **2008: Poster Award, 1st Place.** *Criteria:* Awarded to the top poster presentation at the Inorganic Discussion Weekend (IDW) 2008 Conference in Toronto, Ontario, Canada. *Value:* $90.
12. **2007: University of Ottawa Dean's Honour List – Merit Scholarship.** *Criteria:* Awarded to students who displayed excellent academic standing throughout the previous two academic units. *Value:* $450.
13. **2003: University of Ottawa Admission Scholarship, Undergraduate.** *Criteria:* Awarded to students who have completed secondary school with high academic standing. *Value:* $2 700.

Conference Abstracts:

1. "Expanding the coordination geometry and enhancing the photophysical features of Re(I) with redox non-innocent pincer ligands" D. Richeson, T. Woo, P. Bulsink, P. Joshi, **T. Jurca**, I. Korobkov, *Abstracts of Papers of the American Chemical Society*, **2014**, 247 (807-INOR).
2. "Modulating single-molecule magnets through peripheral ligand modifications" D. Richeson, N. Ghorbanian, **T. Jurca**, I. Korobkov, M. Murugesu, Y. Journaux, Y. Li, *Abstracts of Papers of the American Chemical Society*, **2013**, 246 (90-INOR).
3. "Capturing In+ Monomers in a Neutral Weakly Coordinating Environment" **T. Jurca**, S. I. Gorelsky, I. Korobkov, G. P. A. Yap, D. S. Richeson, *Abstracts of Papers of the American Chemical Society*, **2010**, 240 (465-INOR).

Invited Lectures:

1. **T. Jurca**, "Small Changes, Big Consequences: the downstream effects of ligand design for inorganic coordination compounds" **Departmental lecture (2017)**, Kansas State University, USA.
2. **T. Jurca**, "Small Changes, Big Consequences: the downstream effects of ligand design for inorganic coordination compounds" **Departmental lecture (2017)**, University of Central Florida, USA.
3. **T. Jurca**, "From Small Molecules to Materials Fabrication" **Departmental lecture (2016)**, University of Memphis, USA.
4. **T. Jurca**, "From Small Molecules to Materials Fabrication" **Departmental lecture (2015)**, University of Strasbourg, France.
5. **T. Jurca**, "Developing Ti^{III} Metallocene Precatalysts for the Dehydrocoupling/Dehydrogenation of Amine-Boranes" **Departmental lecture** (**2014**), University of Ottawa, Canada.
6. **T. Jurca**, "Developing Ti^{III} Precatalysts for the Dehydrocoupling/Dehydrogenation of Amine-Boranes", **Gordon Stone Symposium (2013)**, University of Bristol, Bristol, United Kingdom.

Teaching Experience:

- **CHM5450, Polymer Chemistry**: Fall 2017, University of Central Florida, Orlando, FL, USA.
- ***Graduate Course Lecturer***: Frontiers of Main Group Inorganic Chemistry II: N-heterocyclic carbenes (NHC's) and their rapidly-evolving role in main group chemistry, and main group NHC analogues. 2014, University of Bristol, Bristol, United Kingdom.
- ***Graduate Course Lecturer***: Frontiers of Main Group Inorganic Chemistry: The low-valent chemistry of Group 13 elements. Graduate course, 2013, University of Bristol, Bristol, United Kingdom.

Service:

- Reviewer for the *Journal of Organometallic Chemistry.*