Dr. Thomas Baumgartner
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Curriculum Vitae (Short)

Current Position:

Full Professor and Canada Research Chair – Department of Chemistry, York University

Professional Experience:

07/2017 – present	Full Professor, Department of Chemistry, York University
03/2023 – 05/2023	AvH Visiting Professor, Department of Chemistry, University of Regensburg, Germany
10/2022 – 11/2022	Visiting Professor, Research Center for Materials Science, Nagoya University, Japan
07/2017 – 06/2020	Adjunct Professor, Department of Chemistry, University of Calgary
07/2013 – 06/2017	Associate Head (Research), Department of Chemistry, University of Calgary
05/2013 – 06/2017	Acting Director, Centre for Advanced Solar Materials, University of Calgary
04/2013 – 06/2017	Full Professor, Department of Chemistry, University of Calgary
2013, 2014, 2015	AvH Visiting Professor, Department of Chemistry and Graduate School Molecular Science, University Erlangen-Nuremberg, Germany
04/2009 – 03/2013	Associate Professor, Department of Chemistry, University of Calgary
07/2006 – 03/2009	Assistant Professor, Department of Chemistry, University of Calgary
05/2002 – 05/2006	Habilitand (cf. Assistant Professor) at the Institute of Inorganic and Analytical Chemistry, Johannes Gutenberg-University, Mainz (2002-2003), and the Institute of Inorganic Chemistry, RWTH Aachen University (2003-2006); Mentor: Jun Okuda
09/1999 – 02/2002	Postdoctoral Fellow at the University of Toronto, in the research group of Ian Manners with research focus on transition metal-'clusterized' macromolecules
12/1998 – 08/1999	Research Associate at the Institute for Inorganic Chemistry at the University of Bonn

Education:

Dr. rer. nat. (Ph.D.) University of Bonn, Germany
02/1996 - 11/1998, dissertation in the research group of Edgar Niecke, Title: “C-functionalized bis(methylene)phosphoranes: Interesting building blocks for the stabilization of reactive intermediates”

Dipl. Chem. (M.Sc.) University of Bonn, Germany
06/1995 - 01/1996, work in the research group of Edgar Niecke, Title: “Studies on the reactivity of a (methylene)phosphoranylidene carbenoid”

Fellowships, Awards, Recognitions:

2023	Re-invitation Fellowship, Alexander von Humboldt Foundation
2022	Lectureship Award, International Organic Chemistry Foundation (IOCF), Japan
2019	Faculty of Science Established Researcher Award (York)
2018	Liebig Lectureship, Justus-Liebig University, Giessen, Germany
2017 - 2024	Canada Research Chair (Tier 1) in Sustainable Organomain Group Materials
2013	Faculty of Science Award of Excellence in Research (Calgary)
2012	Friedrich Wilhelm Bessel Research Award, Alexander von Humboldt Foundation
2011	Japan Society for the Promotion of Science (JSPS) Invitation Fellowship (short term)
09/2007 - 08/2011	Alberta Ingenuity New Faculty Award
04/2002 - 11/2004	Liebig-Fellowship of the 'Fonds der Chemischen Industrie' (German Chemical Industry Association)
09/1999 - 08/2001	DFG-Postdoctoral Research Fellowship

Research Interests:

- Novel π-conjugated organophosphorus molecules and self-assembling materials for optoelectronics
- Organic and phosphaorganic materials for organic batteries
- Phosphorus-containing viologens for materials applications
- Lewis-acid sensing via fluorescence

Selected Publications

"Phosphoryl- and Phosphonium-Bridged Viologens as Stable Two- and Three-Electron Acceptors for Organic Electrodes", C. R. Bridges, A. M. Borys, V. A. Béland, J. R. Gaffen, T. Baumgartner, *Chem. Sci.* **2020**, *11*, 10483-10487.

"A Simple and Effective Method of Determining Lewis Acidity Using Fluorescence", J. R. Gaffen, L. C. Torres, C. Chu, J. N. Bentley, T. Baumgartner, C. B. Caputo, *Chem* **2019**, *5*, 1567-1583.

"An Unexpected 'Step-Conjugated' Biphosphole via Unique P-P Bond Formation", Z. Wang, N. Asok, J. Gaffen, Y. Gottlieb, W. Bi, C. Gendy, R. Dobrovetsky, T. Baumgartner, *Chem* **2018**, *4*, 2628-2643.

"Xylene-Bridged Phosphaviologen Oligomers and Polymers as High-Performance Electrode Modifiers for Li-Ion Batteries", M. Stolar, C. Reus, T. Baumgartner, *Adv. Energy Mater.* **2016**, *6*, 1600944 (9 pages).

"Dithienophosphole-based Phosphinamides with Intriguing Self-Assembly Behavior" Z. Wang, B. S. Gelfand, T. Baumgartner, *Angew. Chem. Int. Ed.* **2016**, *55*, 3481-3485.

"A Convenient N-Arylation Route for Electron-Deficient Pyridines: The Case of *pi*-Extended Electrochromic Phospha-viologens", C. Reus, M. Stolar, J. Vanderkley, J. Nebauer, T. Baumgartner, *J. Am. Chem. Soc.* **2015**, *137*, 11710-11717.

"Synthesis and Tunability of Highly Electron-Accepting, N-Benzylated 'Phosphaviologens'", M. Stolar, J. Borau-Garcia, M. Toonen, T. Baumgartner, *J. Am. Chem. Soc.* **2015**, *137*, 3366-3371.

"Molecular Engineering of "Click"-Phospholes Towards Self-Assembled Luminescent Soft Materials", X.-M. He, J.-B. Lin, W. H. Kan, P. Dong, S. Trudel, T. Baumgartner, *Adv. Funct. Mater.* **2014**, *24*, 897-906.

"Dithieno[3,2-*c*:2′,3′-*e*]-2,7-diketophosphepin: A Unique Building Block for Multifunctional π-Conjugated Materials", X. M. He, J. Borau-Garcia, A. Y. Y. Woo, S. Trudel, T. Baumgartner, *J. Am. Chem. Soc*. **2013**, *135*, 1137-1147.

"Bio-inspired Phosphole-Lipids: From Highly Luminescent Organogels to Mechanically Responsive FRET", Y. Ren, W. H. Kan, V. Thangadurai, T. Baumgartner, *Angew. Chem. Int. Ed.* **2012**, *51*, 3964-3968.

"External-Stimuli Responsive Photophysics and Liquid Crystal Properties of Self-Assembled 'Phosphole-lipids'", Y. Ren, W. H. Kan, M. A. Henderson, P. G. Bomben, C. P. Berlinguette, V. Thangadurai, T. Baumgartner, *J. Am. Chem. Soc.* **2011**, *133*, 17014**–**17026.

Selected Reviews:

"Functional Conjugated Pyridines via Main-Group Element Tuning", M. Stolar, T. Baumgartner, *Chem. Commun.* **2018**, *54*, 3311-3322.

"Viologens and their Application as Functional Materials", L. Striepe, T. Baumgartner, *Chem. Eur. J.* **2017**, *23*, 16924-16940.

"Phosphorus-Containing Materials for Organic Electronics", M. Stolar, T. Baumgartner, *Chem. Asian J.* **2014**, *9*, 1212-1225.

"Insights on the Design and Electron-Acceptor Properties of Conjugated Organophosphorus Materials", T. Baumgartner, *Acc. Chem. Res.* **2014**, *47*, 1613-1622.

"Organophosphorus π-Conjugated Materials", T. Baumgartner, R. Réau, *Chem. Rev.* **2006**, *106*, 4681-4727.