

Philip D. Bulsink, B.Sc., M.Sc.

CONTACT INFORMATION

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SUMMARY

A proven problem solver with expertise in computational, inorganic, and analytical chemistry. Comfortable with aggressive learning curves and development of novel ideas. Exploring data analysis using Python and R.

EDUCATION

University of Ottawa

Master's Degree

2015

- Thesis: "*Rhenium^I Terdentate Compounds: Theoretical and Experimental Investigations*"
- Seminar: "*Recent Advances in NO_x Abatement from Diesel Engine Emissions*"
- Tasks: Synthesis & characterization of ligands and catalysts with novel photochemical properties. In-depth mechanism studies with various computational packages. Developed software in Python to simplify & accelerate work.
- Supervisors: Dr. Tom Woo and Dr. Darrin Richeson

University of Waterloo

Bachelor of Science, Honour's Chemistry, Co-op, Music Minor

2012

- Honour's Thesis: "*Solid Sample Analysis by Microplasma Optical Emission Spectroscopy*"

PROFESSIONAL EXPERIENCE

Characterization Laboratory, CanmetENERGY, Natural Resources Canada Ottawa
Fuels Chemist **2014 – Present**

Perform method development and routine analysis, including HPLC, GC-MS, and GCxGC for solid, liquid and gaseous samples. Manage statistical control charts and other documentation for ISO9001 certification. Oversee instrument repair and maintenance. Represent laboratory at internal and external client meetings.

University of Ottawa, University of Waterloo

Ontario

Laboratory Teaching Assistant

September 2011 – May 2014

Teaching assistant for undergraduate labs in general, organic, inorganic, analytical, and physical chemistry. Demonstrated techniques and explained theoretical basis for experiments.

CanmetENERGY, Natural Resources Canada

Ottawa

Research Assistant - DeNO_x Group

May 2010 – August 2011 (12 months total)

Research of homogeneous catalysts for removal of NO and NO₂ from lean-burn diesel engine exhaust. Improved catalyst testing procedures. Scaled catalyst synthesis by 3 orders of magnitude. Custom-built instrumentation and software for investigations. Prepared manuscripts for publishing.

Analytical Chemist - Characterization Laboratory

January – April 2009

Performed analysis of solid and liquid fuel samples. Designed and implemented a software based quality control monitoring system to assist ISO 9001:2000 compliance. Repaired analytical instruments.

Kinectrics Inc.

Etobicoke

Analytical Chemist

September – December 2009

Adhered to stringent ISO 17025 and ISO 14000 specifications while performing various chemical analysis. Prepared and tracked round-robin test samples for distribution to other laboratories.

HONOURS AND DISTINCTIONS	Excellence in Science - Departmental Achievement Award, Natural Resources Canada	2023
	Positive Workplace Impact - Energy Efficiency & Technology Sector Award, Natural Resources Canada	2022
	Innovation & Creativity - CanmetENERGY-Ottawa Award, Natural Resources Canada	2021
	Dean's Scholarship, University of Ottawa	2015
	Dean's Honour Roll, University of Waterloo, University of Ottawa	2011 – 2014
	Graduate Student Poster Award, CSC Inorganic Division Poster Symposium, Quebec City	2013
	Recognition of Collaboration - Departmental Achievement Award, Natural Resources Canada	2012
	Aileen Proudfoot Award, CanmetENERGY, Natural Resources Canada	2011
	Outstanding Co-op ranking, University of Waterloo	2009 – 2012
SELECTED PUBLICATIONS & PRESENTATIONS	Bultink, P., Sant-Anna, S., Giddings, T., "Quantification of components without direct calibration by GC-MS/PolyArc®/-FID" <i>American Chemical Society</i> , 2023	
	Bultink, P., "Results of the IEA Bioenergy Round Robin on the Analysis of Heteroatoms in Biomass Liquefaction Oils" <i>CanmetENERGY-Ottawa Science Seminar</i> , 2020	
	Bultink, P., de Miguel Mercader, F., Sandström, L., Van De Beld, B., Preto, F., Zacher, A., Oasmaa, A., Dahmen, N., Funke, A., Bronson, B. "Results of the International Energy Agency Bioenergy Round Robin on the Analysis of Heteroatoms in Biomass Liquefaction Oils", <i>Energy & Fuels</i> , 34, 9, pp. 11123-11133, 2020	
	Bultink, P., Al-Ghamdi, A., Joshi, P., Korobkov, I., Woo, T., Richeson, D. "Capturing Re(I) in a neutral N,N,N pincer scaffold and resulting enhanced absorption of visible light", <i>Dalton Trans.</i> , 45, pp. 8885-8896, 2016	
	Bultink, P. "Transforming the Chemistry of Rhenium I: Physical and Theoretical Investigations", <i>University of Ottawa Thesis</i> , 2015 .	
	Stanciulescu, M., Bultink, P., Caravaggio, G., Nossiova, L., Burich, R. "NH ₃ -TPD-MS study of Ce effect on the surface of Mn- or Fe-exchanged zeolites for selective catalytic reduction of NO _x by ammonia", <i>App. Surface Sci.</i> , 300, pp. 201-207, 2014 .	
	Bultink, P., Korobkov, I., Woo, T., Richeson, D. "Transforming the chemistry of Re ^I to access the Elusive Pincer Geometry", <i>CSC Inorganic Division Poster Symposium</i> , 2013 .	
	Stanciulescu, M., Caravaggio, G., Dobri, A., Moir, J., Burich, R., Charland, J.-P., Bultink, P. "Low-temperature selective catalytic reduction of NO _x with NH ₃ over Mn-containing catalysts", <i>App. Catal. B: Env.</i> , 123-124, pp. 229-240, 2012 .	
	Caravaggio, G., Stanciulescu, M., Burich, R., Scheier, B., Bultink, P. "Novel Catalysts for NO _x Reduction with Reductants Produced In-Situ", <i>DEER Conference</i> , 2010 .	
ACTIVITIES	fldataR Package Author & Maintainer	2022 – present
	Support, maintain, and improve R language package for accessing Formula 1 data via the FastF1 Python package. Includes maintaining R – Python interface via 'reticulate' package, responding to CRAN requests for changes, and handling issues as they are raised on GitHub.	
	BultinkBot Designer & Programmer	2018 – present
	Developed predictive models for NHL Hockey game, season, and playoff results. Posted daily predictions on Twitter, Mastodon and BlueSky social networks. Ranked in top 5 predictive performance in annual competitions against other amateur and professional prediction models from 2019 to present. Provided predictions for dailyfaceoff.com for 2 years (2021-2022 and 2022-2023).	
	ChemCalculator.com Designer & Programmer	2013 – 2017
	Developed website containing various chemistry calculations not available on not user friendly else	

where online. Direct application of self-taught and online course-based knowledge and principles of programming.

Giving Refugees Hope in Uganda, Ottawa, Ontario, Canada

Co-Founder, Vice Chair

2013 – 2016

Co-founded charitable organization assisting refugees in Kampala, Uganda. Administer projects, developed website, maintain online & social media presence. Received charitable status from Canadian Revenue Agency in 8 months.

University of Waterloo, Waterloo, Ontario, Canada

Residence Don

May – August 2009

Responsible for the well-being of 29 first and second year students. Counselling peers through personal and academic concerns. Organized floor and residence outings. Acted as a liaison between students and the Residence Manager.

Continuing Education

Completed the 'Data Science' specialization on Coursera, offered in partnership with Johns Hopkins University.

AFFILIATIONS

Chemical Institute of Canada (CIC), member 2011 -- Present