# Philip D. Bulsink, BSc., MSc.


CONTACT INFORMATION

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https://github.com/pbulsink


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 GC-MS, SEM, and ICP-MS, 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 $NO_2$ 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

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|---|---|
| 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 Award, CanmetENERGY, Natural Resources Canada | **2012** |
| Aileen Proudfoot Award, CanmetENERGY, Natural Resources Canada | **2011** |
| Outstanding Co-op ranking, University of Waterloo | **2009 – 2012** |

## Selected Publications

Bulsink, P. "Transforming the Chemistry of Rhenium I: Physical and Theoretical Investigations", *Univeresity of Ottawa Thesis*, **2015**.

Stanciulescu, M., Bulsink, P., Caravaggio, G., Nossova, L., Burich, R. "NH3-TPD-MS study of Ce effect on the surface of Mn- or Fe-exchanged zeolites for selective catalytic reduction of NOx by ammonia", *App. Surface Sci.*, 300, pp. 201-207, **2014**.

Bulsink, P., Korobkov, I., Woo, T., Richeson, D. "Transforming the chemistry of $Re^{I}$ to access the Elusive Pincer Geometry", *CSC Inorganic Division Poster Symposium*, **2013**.

Stanciulescu, M., Caravaggio, G., Dobri, A., Moir, J,. Burich, R., Charland, J.-P., Bulsink, P. "Low-temperature selective catalytic reduction of NOx with NH3 over Mn-containing catalysts", *App. Catal. B: Env.*, 123-124, pp. 229-240, **2012**.

Caravaggio, G., Stanciulescu, M., Burich, R., Scheier, B., Bulsink, P. "Novel Catalysts for NOx Reduction with Reductants Produced In-Situ", *DEER Conference*, **2010**.

## Activities

**Giving Refugees Hope in Uganda**, Ottawa, Ontario, Canada
*Co-Founder, Vice Chair* **January 2013 – Present**

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.

**ChemCalculator.com**
*Designer & Programmer* **January 2013 – Present**

Developed website containing various chemistry calculations not available or not user-friendly elsewhere online. Direct application of self-taught and online course-based knowledge and principles of programming.

**University of Waterloo**, Waterloo, Ontario, Canada
*Residence Don* **May – August 2009**

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

**Continuing Education**
Completed (with verified certificate) portions of the 'Data Science' specialization on Coursera, offered in partnership with John Hopkins University.

## Affiliations

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