

Kyle Bryenton

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CURRENT ROLE: POSTDOCTORAL RESEARCH ASSOCIATE

Dalhousie University, Department of Chemistry & Industrial Partner: Draslovka
PI: Drs. Erin Johnson & Luc LeBlanc

Halifax, NS
2026–present

Project Title: Towards Sustainable Metal Extraction in Mining: Tailoring Glycine Leaching Technologies

My postdoctoral research role is supported by an industrial partnership between Draslovka, Dalhousie University's Department of Chemistry, and collaborators at the University of Cambridge. Building on my PhD work in density-functional theory (DFT) method development and testing, my research focuses on advancing Glycine Leaching Technology (GLT) to make mining more sustainable and economical.

EDUCATION

Dalhousie University, Department of Physics and Atmospheric Science
PhD in Chemical Physics, Advisor: Dr. Erin Johnson

Halifax, NS
2020–2025

AARMS Summer School: Dyn. Sys., DEs, and Special Functions
Graduate Summer School, Instructors: Drs. James Yorke & Mourad Ismail

Charlottetown, PE
2019

University of Guelph, Guelph-Waterloo Physics Institute
MSc in Physics, Advisor: Dr. Elisabeth Nicol

Guelph, ON
2016–2018

University of Prince Edward Island
BSc Hons.+Co-op in Physics & Maths, Advisors: Drs. Nasser Saad & Sheldon Opps

Charlottetown, PE
2011–2016

PAST RESEARCH EXPERIENCE (SELECTED)

- UPEI School of Mathematical and Computational Sciences
Research Fellow — PI: Dr. Nasser Saad 2019
- UPEI Departments of Mathematics and Physics
Undergraduate Research Assistant — PI: Drs. Nasser Saad, Sheldon Opps, & Gordon MacDonald 2012–2016
- PEI Cancer Treatment Centre
Physics Co-op Work Placement — PI: Dr. John Andrew & Grant MacNevin 2013

ACADEMIC PROFESSIONAL & SOCIETAL SERVICES (SELECTED)

Fritz Haber Institute *ab initio* Materials Simulations (FHI-aims) — Developer 2022–present
Dalhousie Graduate Physics Society — Treasurer 2022–2024
UPEI Mathematics Society — President 2013–2016
UPEI Physics Society — Vice President 2014–2015

TEACHING EXPERIENCE (SELECTED)

Department of Physics	Dalhousie University, NS
Lecturer & Teaching Assistant — PHYC 3640 Quantum Mechanics	2022
Tutorial Instructor — PHYC 2140 Physics Tools: Theory	2020
Lecturer & Teaching Assistant — First-year Physics	2020
Department of Physics	University of Guelph, ON
Lab Instructor & Teaching Assistant — First-year Physics	2016–2018
Departments of Physics and Mathematics	UPEI, PE
Observatory Technician	2012–2016
Teaching Assistant — PHYS 251/252 Introductory Astronomy	2012–2016
Tutorial Instructor — PHYS 312 Electromagnetism I	2015
Teaching Assistant — First-year Physics	2013–2014
Math Help Centre Tutor	2013
UPEI Mathematics Achievement Program	Charlottetown, PE
Founder & Director	2015–2016

SCHOLARSHIPS AND AWARDS

Award Name	Value	Year	Award Name	Value	Year
CSTCC Best Contributed Talk Award	\$556	2024	R. Haines Mem. Sci. Award of Merit	N/A	2015
Mary M. Werner Grad. Scholarship	\$5,000	2024	Dr. John H. Maloney Scholarship	\$390	2015
IBM-Zerner Graduate Student Award	\$674	2024	MacLauchlan Prize for Eff. Writing	\$500	2015
CCAM Physics Conf. Feedback Award	\$30	2022	Dr. Terry McCormack Award	\$500	2015
Killam Predoctoral Scholarship	\$90,000	2020	UPEI Academic Excellence Award	\$2,000	2015
Nova Scotia Graduate Scholarship	\$60,000	2020	NSERC USRA	\$4,500	2014
Dalhousie President's Award	\$12,294	2020	UPEI Academic Excellence Award	\$1,000	2014
Walter C. Sumner Mem. Fellowship	\$16,400	2020	Island Student Award - Fourth Year	\$600	2014
CMS President's Award	\$100	2019	Chin-Hai Lin Memorial Award	\$120	2013
NSERC CCGS-M	\$17,500	2017	Physics Co-op Student of the Year	\$500	2013
Ontario Graduate Scholarship (Decl.)	\$15,000	2017	Physics Dept Prize in Modern Physics	\$200	2013
Ontario Graduate Fellowship	\$9,000	2017	Island Student Award - Third Year	\$600	2013
Jeff Praught Grad. Award in Math	\$500	2016	Austin A. Scales Scholarship	\$2,000	2012
Physics Department Graduation Prize	\$200	2016	Island Student Award - Second Year	\$400	2012
George Coles Graduate Scholarship	\$1,400	2016	Inspiring Excellence Award	\$1,000	2011
UPEI Diam. Award in Ed. Leadership	\$500	2016	PEI: Community Service Bursary	\$500	2011
UPEI Student/Alumnus of the Month	N/A	2016	George Coles Bursary	\$2,000	2011

PUBLICATIONS (SELECTED)

1. **K. R. Bryenton**, E. R. Johnson, *The exchange-correlation dipole moment dispersion method*. Submitted to: Phys. Chem. Chem. Phys. (2025). doi: 10.48550/arXiv.2506.02352
2. **K. R. Bryenton**, E. R. Johnson, *Many-Body Dispersion in Model Systems and the Sensitivity of Self-Consistent Screening*, J. Chem. Phys. **158**, 204110 (2023). doi: 10.1063/5.0142465
3. **K. R. Bryenton**, A. A. Adeleke, S. G. Dale, E. R. Johnson, *Delocalization Error: The Greatest Outstanding Challenge in Density-functional Theory*, WIREs Comput. Mol. Sci. **13** e1631, (2023). doi: 10.1002/wcms.1631
4. A. J. Price, **K. R. Bryenton**, E. R. Johnson, *Requirements for an Accurate Dispersion-corrected Density Functional*, J. Chem. Phys. **154**, 23, 230902, (2021). doi: 10.1063/5.0050993
5. J. Carbotte, **K. R. Bryenton**, E. J. Nicol, *Optical Properties of a Semi-Dirac Material*, Phys. Rev. B. **99**, 115406, (2019). doi: 10.1103/PhysRevB.99.115406

CONFERENCE CONTRIBUTIONS (SELECTED)

Poster Presentations

World Assoc. of Theoretical and Computational Chemists (WATOC) - Oslo, Norway	2025
Sixty-Third Sanibel Symposium - St. Augustine Beach, FL	2024
FHI-aims Developers Meeting - Hamburg, Germany	2023
Canadian Association of Physicists (CAP) Congress - Fredericton, NB	2023
American Chemical Society Spring Meeting - Indianapolis, IN	2023
Canadian Mathematical Society Winter Meeting - Toronto, ON	2019

Conference Presentations

Canadian Symp. on Theoretical and Computational Chemistry (CSTCC) - Halifax, NS	2024
Canadian Association of Physicists (CAP) Congress - Fredericton, NB	2023
American Chemical Society (ACS) Spring Meeting - Indianapolis, IN	2023
Canadian-Cuban-American-Mexican (CCAM) Graduate Student Physics Conference - Virtual	2022
Canadian Mathematical Society (CMS) Winter Meeting - Toronto, ON	2019
Atlantic Universities Physics and Astronomy Conference (AUPAC) - St. John's, NL	2016
Canadian Mathematical Society (CMS) Summer Meeting - Charlottetown, PE	2015
Atlantic Universities Physics and Astronomy Conference (AUPAC) - Sackville, NB	2015
Science Atlantic Math and Computer Science Conference - St. John, NB	2014
Science Atlantic Math and Computer Science Conference - Sackville, NB	2012

Technical Seminars

PEI Cancer Treatment Centre - Charlottetown, PE	2013
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Invited Talks

UPEI School of Mathematical and Computational Sciences - Seminar	2024
UPEI School of Mathematical and Computational Sciences - Seminar	2016