Ryan A. **Beck**

Graduate Student

Seattle, WA

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Education

University of Washington — *Seattle, WA*

Ph.D. in Chemistry — *Sept. 2016 - Current*

Advisor: Prof. Xiaosong Li

GPA: 3.49 / 4.0

York College of Pennsylvanya — *York, PA*

B.S. in Chemistry, *Magna Cum Laude*. Minors in Computer Science and Mathematics — *Aug. 2012 - May 2016*

GPA: 3.89 / 4.0

Experience

University of Washington — *Seattle, WA*

DIRECT Trainee — *Mar. - June 2019*

- Machine-learning collaboration with Maria Chan at Argonne national lab investigating material properties given geometric and elemental properties
- Used python ML packages to attempt to refine search for important descriptors

York College of Pennsylvania — *Seattle, WA*

Organic and Physical Chemistry Laboratory Preparation — *Aug. 2014 to May 2016*

- Responsibilities include preparing and monitoring chemicals and supplies used during labs.

York College of Pennsylvania — *Seattle, WA*

Lab Assistant — *Jan. 2013 to May 2016*

- Responsibilities include monitoring students to ensure safe and time efficient behaviors.

Honors & Awards

2019 - 2020 **Graduate Student Merit Fellowship**, University of Washington — *Seattle, WA*

2018 - 2019 **Data Intensive Research Enabling Clean Technologies (DIRECT) Fellowship**, University of Washington — *Seattle, WA*

2016 **Excellence in Chemistry Graduate Fellowhip Award**, University of Washington — *Seattle, WA*

2016 **South Eastern Pennsylvania Section of the American Chemical Society Outstanding Chemist**, York College of Pennsylvania — *York, PA*

2015 - 2016 **Alpha Chi Honor Society**, Pennsylvania Delta Chapter — *York, PA*

2012 - 2016 **Dean's List**, York College of Pennsylvania — *York, PA*

2012 **Eagle Scout**, Boy Scouts of America Troop 26 — *Wrightsville, PA*

Publications

6. **Beck, R.A.**; Lu, L.; Petrone, A.; Ong, A.C.; Pauzauskie, P.; Li, X., Spectroscopic Signatures of the B and H_4 Polyatomic Nitrogen Aggregates in Nanodiamond. *J. Phys. Chem. C*, **2020**, 124, 18275-18283.
5. Sun, S.; **Beck, R.A.**; Williams-Young, D.B.; Li, X., Simulating Magnetic Circular Dichroism Spectra with Real-Time Time-Dependent Density Functional Theory in Gauge Including Atomic Orbitals. *J. Chem. Theory Comput.*, **2019**, 15, 6824-6831. DOI: 10.1021/acs.jctc.9b00632.
4. Crane, M.; Petrone, A.; **Beck, R.A.**; Lim, M.; Zhou, X.; Li, X.; Stroud, R.M.; Pauzauskie, P., High Pressure, High Temperature Molecular Doping of Nanodiamond. *Sci. Adv.*, **2019**, 5, eaau6073. DOI: 10.1126/sciadv.aau6073.
3. Leger, J.; Friedfeld, M.; **Beck, R.A.**; Gaynor, J.; Petrone, A.; Li, X.; Cossairt, B.; Khalil, M., Carboxylate Anchors Act as Exciton Reporters in 1.3 nm Indium Phosphide Nanoclusters. *Phys. Chem. Lett.*, **2019**, 10, 1833-1839. DOI: 10.1021/acs.jpclett.9b00602.
2. Petrone, A.*; **Beck, R.A.***; Kasper, J.M.; Huang, Y.; Crane, M.; Pauzauskie, P.; Li, X., Electronic Structures and Spectroscopic Signatures of Silicon-Vacancy Containing Nanodiamonds. *Phys. Rev. B*, **2018**, 98, 205405. DOI: 10.1103/PhysRevB.98.205405.

1. **Beck, R.A.***; Petrone, A.*; Kasper, J.M.; Crane, M.; Pauzauskie, P.; Li, X., Effect of Surface Passivation on Nanodiamond Crystallinity. *J. Phys. Chem. C.*, **2018**, 122, 8573-8580. DOI: 10.1021/acs.jpcc.8b00354.
*Co-First Authors

Presentations

Aug. 2020	**Beck, R.A.**; Sushko, P.; Xu, X; Li, X., *Investigation of Chromium Iodide Skyrmionic Structures*. (Oral Presentation) Materials Research Science and Engineering Center.	*University of Washington*
Aug. 2020	**Beck, R.A.**; Huang, Y.; Ganas, A.; Pauzauskie, P.; Xu, X; Li, X., *Noble Gas Incorporation into Nanodiamond*. (Oral Presentation) Materials Research Science and Engineering Center.	*University of Washington*
Oct. 2019	**Beck, R.A.**; Sun, S.; Liu, H.; Li, X., *Investigation of Layered Chromium Iodide Structures*. (Oral Presentation) Materials Research Science and Engineering Center.	*University of Washington*
Sept. 2019	**Beck, R.A.**; Lu, L.; Petrone, A.; Ong, A.C.; Pauzauskie, P.; Li, X., *Spectroscopic Signatures of the Nitrogen B and H_4 Aggregates in Nanodiamonds*. (Poster) European Summerschool in Quantum Chemistry.	*Sicily, Italy*
June 2019	**Beck, R.A.**; Sun, S.; Liu, H.; Li, X., *Investigation of Magnetic Properties of a Two-Dimensional Chromium Iodide Material*. (Oral Presentation) Northwest Theoretical Chemistry Conference.	*Pullman, WA*
Sept. 2018	**Beck, R.A.**; Petrone, A.; Li, X., *Examination of Spectroscopic Signatures of Nanodiamond Defects*. (Oral Presentation) Materials Research Science and Engineering Center.	*University of Washington*
Oct. 2017	**Beck, R.A.**; Petrone, A.; Li, X., *Spectroscopic Response to the Loss of Nanodiamond Surface Crystallinity*. (Poster) Northwest Theoretical Chemistry Conference	*Richland, WA*
Oct. 2017	**Beck, R.A.**; Petrone, A.; Li, X., *Spectroscopic Signatures of Surface Reconstructions of Nanodiamond*. (Oral Presentation) Materials Research Science and Engineering Center.	*University of Washington*
Aug. 2017	Petrone, A.; Williams-Young, D.B.; **Beck, R.A.**; Li, X., *Surface Reorganization and X-ray Spectra of Nitrogen-Vacancy Containing Nanodiamonds*. (Oral Presentation) 254th ACS National Meeting	*Washington D.C.*
Mar. 2016	Esmeralda, L.; **Beck, R.A.**; Halligan, K., *Crosslinking of the Antibody Anti-Human IL-13R Alpha 2 Peptide IgY to FITC via PDPH*. (Poster) 251st ACS National Meeting	*San Diego, CA*

Extracurricular Activity

ALVA / MEM-C Mentor — *University of Washington*

- Mentorship for recent high-school graduates (UW ALVA) and for current undergraduate (MEM-C REU) students.
- Have mentored six students in computational chemistry applications from 2017-2020.

Clean Energy Institute Ambassadors — *University of Washington*

- Solar cell demonstration at MESA Day
- Solar car derby at Thorton Creek Elementary
- Solar car derby at Engineering Discovery Days

York College Chemistry Society — *York College of Pennsylvania*

- Chemistry Society secretary (2015-2016)
- Organization and facilitation of chemistry demonstrations to York Suburban High School
- Organization and facilitation of chemistry demonstrations for ”Perspective Student” and ”New Student” activities