Dustin T. Abele

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Education

George Washington University **Washington, D.C.**
Ph.D. in Chemistry *2024*
Doctoral Advisor: Dr. Michael J. Wagner

Appalachian State University **Boone, NC**
B.S. in Chemistry, minor in Leadership Studies *2015*
NCAA Division I Athlete: Men's Golf

Professional Experience

PolyPV **Raleigh, NC**
Coating Development Engineer *Nov 2022 – May 2024*

- Spearheaded the transition from lab-scale developments to scalable processes using a slot-die coater, ensuring production efficiency and scalability.
- Led cross-functional teams, facilitating knowledge transfer between research and manufacturing teams.
- Managed project activities from laboratory operations to business development, evaluating equipment and materials for scalability.
- Principal Investigator for an NSF grant, managing $256,000 in funding, showcasing administrative excellence in grant management, budget allocation, and reporting.
- Handled payroll, inventory management, and purchasing, ensuring smooth operations and maintaining operational efficiency.

George Washington University **Washington, D.C.**
Graduate Research Assistant *June 2016 - Present*

- Demonstrated carbon-negative conversion of biochar to high purity crystalline flake graphite via fast LASER pyrolysis catalytic process, securing over $300,000 in grant funding, resulting in 2 publications and 1 patent.
- Developed a cost-effective and scalable synthetic method to produce porous silicon materials for use in energetic and Li-ion battery energy storage applications, leading to 1 publication.
- Led 2 multidisciplinary research collaborations, contributing to the development of flexible electronic circuits and aromatic polyamide polymer brushes, resulting in 4 publications and 1 patent.

PreScouter **Remote**
Junior Consultant *April 2020 – December 2022*

- Led a team of analysts to provide expertise in battery energy storage technology, advising clients on improved capital resource allocation for emerging research in various manufacturing industries.
- Conducted in-depth investigations of relevant areas of interest, connecting industry leaders with innovative start-ups and emerging technologies in energy storage and carbon capture, resulting in over 25 completed projects for industry clients.

Analyst *May 2018 – April 2020*

- Analyzed market penetration and the global battery landscape, providing detailed insights and identifying strategic partners through secondary sources for clients with emerging technologies.

Mallinckrodt Pharmaceuticals **Raleigh, NC**
Quality Control Technician *May 2015 – May 2016*

- Performed in-process testing and analysis using HPLC, FTIR, UV-Vis, and GC, ensuring timely and accurate results in a cGMP environment for internal customers.
- Maintained meticulous records of laboratory analyses, including data from HPLC, FTIR, UV-Vis, GC, and KF Titrator, adhering to cGMP standards to ensure data integrity and traceability.
- Prepared and calibrated standards and reagents for analytical methods, including those for HPLC and GC, ensuring consistent and reliable results for Acetaminophen testing.

Appalachian State University **Boone, NC**
Undergraduate Research Assistant *May 2014 – May 2015*

- Synthesized 1,2-dipentafluorophenlyglyoxime ligands from a multi-step inert-atmosphere procedure to be studied as potential water reduction catalyst.

Teaching Experience

George Washington University **Washington, D.C.**
Graduate Teaching Assistant, General Chemistry 1 & 2 *Fall 2019*
Course Coordinator: Ashley Mills

Graduate Teaching Assistant, General Chemistry 2 *Summer 2019*
Course Coordinator: Ashley Mills

- *Guest lectured the lecture course for 1 class*

Graduate Teaching Assistant, General Chemistry 1 *Fall 2016*
Course Coordinator: Ashley Mills

Honors and Awards

Benjamin D. Van Evera Memorial Prize 2019

- Awarded to the most effective Graduate Teaching Assistants in the Department of Chemistry

2nd Place for Graduate presenters in the Area of Studies in Business, Politics, and Society 2019

- "Analyzing Correlation and Power-law tails of YouTube Trending Videos from 10 Countries"

Cross-Disciplinary Research Fund Award 2017, 2018

Published Manuscripts

- Banek, N. A., McKenzie Jr., K. R., Abele, D. T., Wagner, M. J., Sustainable conversion of biomass to rationally designed lithium-ion battery graphite. Sci. Rep. **2022**, 12 (1), 1-11. https://doi.org/10.1038/s41598-022-11853-x
- Reese, C. J.; Yarong, Q.; Abele, D. T.; Shalfstein; M. D., Wagner; M. J., Liu, X.; Boyes, S. G.; Antifouling Polyethylene Glycol Functionalized Aromatic Polyamides Brushes Grown via Surface Initiated Chain Growth Condensation Polymerization. ACS Appl. Polym. Mater. **2022**. 4, 3, 1890-1902. https://doi.org/10.1021/acsapm.1c01742

- Reese, C. J., Yarong, Q., Abele, D. T., Maximillian, D. S., Dickhudt, R. J., Guan, X., Wagner, M. J., Liu, X., Boyes, S. G., Aromatic Polyamide Brushes for High Young's Modulus Surfaces by Surface Initiated Chain-Growth Condensation Polymerization. Macromolecules **2022**, 55, 6, 2051-2066. https://doi.org/10.1021/acs.macromol.1c02088
- Banek, N. A.; Abele, D. T.; Price, K. M.; Churaman, W.A.; Wagner, M. J.; Rapid and Low-Cost Synthesis of Porous Silicon Powder from Mg_2Si for Energetic Applications, DEVCOM **2021**, ARL-TR-9290. https://apps.dtic.mil/sti/citations/AD1147922
- Orrill, M.; Abele, D. T.; Wagner, M. J.; LeBlanc, S.; Sterically Stabilized Multilayer Graphene Nanoshells for Inkjet Printed Resistors. Electron. Mater. **2021**, 2(3), 394-412. https://doi.org/10.3390/electronicmat2030027.
- Orrill, M.; Abele, D. T.; Wagner, M. J., LeBlanc, S.; Ink synthesis and inkjet printing of electrostatically stabilized multilayer graphene nanoshells. J. Colloid Interface Sci. **2020**, 566, 454-462. https://doi.org/10.1016/j.jcis.2020.01.
- Banek, N. A., Abele, D. T., McKenzie Jr., K. M., and Wagner, M. J., Sustainable Conversion of Lignocellulose to High-Purity, Highly Crystalline Flake Potato Graphite. ACS Sustain. Chem. Eng. **2018**, 6, 10, 13199-13207. https://doi.org/10.1021/acssuschemeng.8b02799.

Presentations

- GWU Chemistry Seminar 2022, Sustainable Materials for High Energy Density Li-ion Batteries
- NSWC Indian Head Seminar 2018, Selenium/Carbonaceous Composites for Lithium-Selenium Batteries
- GWU Chemistry Seminar 2017, High-Capacity Silicon/Carbonaceous Composites for Lithium-ion Anodes
- PRIME 2016/230th ECS meeting poster session, Synthetic Variations of Hollow Graphene Nanoshells for Li-Ion Battery Anode
- Appalachian State University 18th Annual Celebration of Student Research and Creative Endeavors 2015, Preparation and Characterization of Glyoximes