Matthew Chagnot, Ph.D.

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Ph.D. materials scientist with expertise in inorganic synthesis, electrochemical interfaces, and advanced spectroscopy. Experienced in leading multi-year energy storage projects and mentoring research teams. Skilled in MATLAB-based data modeling and mechanistic analysis of complex chemical systems.

EDUCATION

North Carolina State University (NC State), Raleigh, NC **August 2024**
Ph.D. in Materials Science & Engineering GPA: 3.69

Rice University, Raleigh, NC **May 2019**
Bachelor of Science in Materials Science & Nanoengineering, Business Minor GPA: 3.46

TECHNICAL SKILLS

- Optical and electron microscopy (Raman, TEM)
- Experimental design (JMP)
- Spectroscopy (EDS, UV/Vis)
- Other materials characterization (XRD, TGA)
- Instrument maintenance (Raman, KF titrator, pH probes)
- Git

WORK EXPERIENCE

Postdoctoral Researcher, Augustyn Lab, Raleigh, NC **September 2024 – March 2025**

- Utilizing skills and competencies obtained in graduate studies, assumed a leadership role in initiating new projects within the focus of aqueous batteries, particularly with respect to the solid/liquid interface between the inorganic electrode and hybrid organic electrolyte

Graduate Student Researcher, Augustyn Lab, Raleigh, NC **July 2019 – August 2024**

- Led the synthesis and electrochemical evaluation of transition metal oxide materials for energy storage applications using wet chemistry, solid-state chemistry, and electrodeposition, understanding material and device performance through iterative composition and processing optimization
- Characterized inorganic solids in powder and thin film morphologies using advanced techniques including XRD, Raman spectroscopy, TGA, UV-Vis and TEM, enabling structure-property correlation
- Developed and validated custom MATLAB simulations to model diffusion-limited cyclic voltammetry behavior in thin films, improving the predictive understanding of ion transport kinetic limitations in non-aqueous systems
- Mentored 3+ undergraduate researchers and presented findings in peer-reviewed publications and award-winning conference posters, demonstrating strong scientific communication skills and team leadership in a fast-paced research environment

Undergraduate Researcher, Ringe Group, Houston TX **August 2016 – January 2018**

- Synthesized metal oxide nanoparticles with tunable size, shape, and composition to support optical and electronic applications, applying principles of electrochemistry and nanomaterials engineering
- Characterized nanomaterials using advanced techniques including optical microscopy, electron microscopy, and UV-Vis spectroscopy to evaluate structure–property relationships and ensure processing consistency

LEADERSHIP EXPERIENCE

Graduate Ambassador Chair, SHPE, NC State **May 2022 – May 2023**

- Led the organization of informational events as the graduate ambassador for the local chapter of the Society of Hispanic Professional Engineers, increasing undergraduate participation in research and graduate school programs by effectively promoting opportunities