Anthony M. Smaldone

New Haven, CT

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Education

- **Yale University** — New Haven, CT
  Doctor of Philosophy in Theoretical Chemistry — *August 2022 – Present*
- **State University of New York at Binghamton** — Binghamton, NY
  Bachelor of Science in Chemistry and Mathematics; Summa Cum Laude — *Aug 2019 – May 2022*
- **Corning Community College** — Corning, NY
  Associate of Science in Mathematics and Sciences; Summa Cum Laude — *Aug 2018 – May 2019*

Research Experience

- **Graduate Research Assistant** — New Haven, CT
  Batista Lab - Theoretical Chemistry — *Nov 2022 – Present*
- **Undergraduate Research Assistant** — Binghamton, NY
  Lees Lab - Photochemistry — *June 2020 – Present*
  - **Computational**
    - Structure Optimizations using Density Functional Theory (DFT) with Gaussian Suite
    - Scanning Potential Energy Surfaces, Identifying Transition States using DFT
    - Time-Dependent DFT for finding transitions in aggregated systems
  - **Experimental**
    - Organic synthesis of sulfite sensors
    - Anion screenings for sensor specificity
    - Characterizations with NMR and UV-Vis
- **NSF REU Research Assistant at the University of Pennsylvania** — Philadelphia, PA
  Walsh Lab - Organic Asymmetric Catalysis — *May 2021 – Aug 2021*
  - **Computational**
    - Performed DFT calculations for the analysis of catalytic intermediates
    - Benchmarked chemical systems across a wide range of functionals and basis sets
  - **Experimental**
    - Synthesized a range of asymmetric organocatalysts
    - Biotage Flash Chromatograph and Column Chromatography for purification
    - SFC for separation of stereoisomers
    - NMR for purity and yield analysis
- **Summer Research Immersion Assistant** — Binghamton, NY
  Smeu Group - Computational Physics — *May 2020 – Aug 2020*
  - Performed DFT calculations in different periodic systems using Quantum Espresso
  - Doped MnO_2 with Ni to find optimal concentration for use as a secondary battery cathode
  - Intercalation site testing with multivalent cations
  - Voltage and volume change analysis

Posters and Presentations

- **Poster:** Smaldone, A.M.; Panetier, J.A.; Lees, A.J. Understanding the Sulfite Sensing Ability of 4-(1H-pyrrol-2-yl) pyridine with Density Functional Theory. *Binghamton ACS Poster Session.* **2021.**
- **Presentation:** Smaldone, A.M.; Pu, Y; Walsh, P.J. Sulfenate Anion-Catalyzed Enantioselective Aziridination. *University of Pennsylvania NSF REU Presentation Session.* **2021.**
- **Poster:** Smaldone, A.M.; Moghaddasi, M.A.; Feng, K.; Shepard, R.; Smeu, M. Density Functional Theory Analysis of Ni-Doped MnO_2 in Multivalent Ion Battery Applications. *Binghamton Research Days Poster Session.* **2020.**

Relevant Coursework

- **Chemistry and Physics Coursework**
  - Analytical Chemistry
  - Calculus-based Physics I
  - Calculus-based Physics II
  - Experimental Physical Chemistry
  - Intermediate Inorganic Chemistry
  - Instrumental Methods and Analysis
  - Introduction to Quantum Mechanics I
  - Introduction to Quantum Mechanics II
  - Introduction to Statistical Mechanics I
  - Introduction to Statistical Mechanics II
  - Molecular Photochemistry
  - Molecules and Radiation: Matrix Methods in Quantum Mechanics I
  - Molecules and Radiation: Matrix Methods in Quantum Mechanics II
  - Physical Chemistry
  - Physical Inorganic Chemistry
  - Physical Organic Chemistry
  - Quantum Chemistry and Spectroscopy
  - Research in Smart Energy I
  - Research in Smart Energy II
  - Organic Chemistry I
  - Organic Chemistry II
  - Organic Chemistry Laboratory
- **Mathematics Coursework**
  - Advanced Linear Algebra
  - Differential Equations for Engineers
  - Differential Equations (Proof based)
  - Dynamical Systems
  - Foundations of Geometry
  - Linear Algebra
  - Multivariable Calculus
  - Number Systems
  - Partial Differential Equations
  - Topics in the History of Mathematics

Technological Skills

- **Languages/Scripts**: Python, Java, SLURM, Bash, Batch
- **Programs/Systems**: Gaussian Suite, Quantum Espresso, Unix, Android Development, Microsoft Office Suite, Windows OS

Leadership, Volunteer, Extracurricular

- **Founder of STEM Youth Outreach Program** July 2021 – Present
  - A volunteer organization aimed to expose pre-adolescents in Tier 1 classified school districts to STEM
  - 300 students reached in the first months of operation
- **Official Chemistry Mentor** Aug 2021 – May 2022
  - Mentor in the Smart Energy Scholars Mentor Program
  - Mentor in the Binghamton University Chemistry Club
- **Student Association Executive Board Treasurer at Corning Community College** Aug 2018 – May 2019
  - Acted as Budget Committee Chairman
  - Created/passed budget of funds exceeding $280,000 for the 2019-2020 academic year
  - Managed Executive Board Funds exceeding $40,000 with zero deficiencies
  - Developed criteria to approve the dispensing of funds to clubs and organizations
- **Debate Club Founder and President at Corning Community College** Aug 2018 – May 2019
  - Secured collegiate funding for club expenses
  - Held formal and informal debates
  - Instructed members on refining their debate skills

Laboratory Equipment and Techniques

- NMR
- UV-Vis
- Polarimeter
- Gas Chromatograph (TCD/MS)
- Melting Point Apparatus
- Column Chromatograph
- Refractometer
- Fluorimeter
- Cyclic Voltammetry
- FTIR Spectrometer
- Supercritical Fluid Chromatograph
- Flash Chromatograph
- Titrations
- Simple/Fractional Distillations
- Recrystallizations
- Acid/Base Extractions
- Thin-Layer Chromatography
- HPLC
- Raman/SERS

Work and Teaching Experience

- **Teaching Assistant for General Chemistry I** Aug 2022 – Dec 2022
  - Administered two weekly one hour discussions
  - Held two weekly office hours
- **Teaching Assistant for Inorganic Chemistry** Aug 2020 – Dec 2020
  - Administered weekly two hour discussions
  - Held weekly office hours
- **Network Technician at Corning-Painted Post School District** Summers of 2018 and 2019
  - Built computer labs
  - Mass updated laptops' BIOS and software

Honors and Awards

- Yale Teaching Fellowship
- Smart Energy Scholarship ($30,000)
- CCC Presidential Scholarship ($5,600)
- Evans Roofing Company Inc. Scholarship ($4,400)
- Summer Research Immersion Scholarship ($2,400)
- Dr. Nathan V. Cooper Memorial Scholarship ($1,400)
- Binghamton University Dean's List
- Corning Community College President's List
- Phi Beta Kappa Honors Society
- Phi Theta Kappa Honor Society
- Tau Sigma Honors Society
- Pi Mu Epsilon Honor Society