

Astrid Tarleton

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<http://gozemlab.com/home.html>



Overview

Multidisciplinary training and experience in both computational and organic chemistry. Three years of thesis research on quantum chemical computations of small organic molecules. Two years of undergraduate research on the design and synthesis of near-infrared (NIR) II cyanine fluorophores. Teaching assistant for organic chemistry and thermodynamics and kinetics courses.

GPA 4.14

Authorized to work in the US for any employer

Education

Master's in Computational Chemistry

Georgia State University—Atlanta, GA

January 2020 to Present

Bachelor's in Chemistry

Georgia State University—Atlanta, GA

Cum Laude

August 2017 to December 2019

Bachelor's in Chemistry

University of North Carolina Asheville—Asheville, NC

August 2015 to April 2017

Experience

Graduate Research Assistant (GRA)

Georgia State University—Atlanta, GA

Under the advisement of Dr. Samer Gozem

January 2020 to Present

1. Designed a data benchmark set from UV/vis absorption spectra of over 100 small organic molecules
 - o involved digitization of spectra, spectral fitting, numerical and analytical integration methods, and data visualization
2. Performed density functional theory (DFT) quantum mechanical calculations using molecular modeling software for these same organic molecules
3. Designed and conducted statistical analyses to extract meaningful diagnostics from data-intensive calculations
4. The goal of this project is to quantify the typical error associated with quantum mechanical calculations compared to experimental data for each small organic molecule



Teaching Assistant (TA)

Georgia State University—Atlanta, GA

January 2018 to December 2019

1. Organic Chemistry I
 - a. Guided students in performing fundamental laboratory techniques, synthesis, recrystallization, and distillation, of small organic compounds
 - b. Proctored lectures and graded work of fifty or more students
2. Organic Chemistry II
 - a. Operated the Nuclear Magnetic Resonance (NMR) 60 MHz spectrometer to generate spectra of student-synthesized molecules
 - b. Interpreted chemical structures of these same molecules by accounting for chemical shifts, multiplicity, coupling, and integration
3. Thermodynamics and Kinetics
 - a. Tutored students on the fundamental concepts: state and path functions, ideal and real gas properties, and zeroth, first, second, and third law of thermodynamics
 - b. Graded online submissions of exams and quizzes for approximately fifty students

Undergraduate Research Assistant

Georgia State University—Atlanta, GA

September 2017 to May 2019

Under the advisement of Dr. Maged Henary

1. Designed and synthesized near-infrared (NIR) II cyanine fluorophores to generate a dye for non-invasive cancer imaging with high spatial resolution and long-lived detection rates
 - a. Techniques: synthesis under inert conditions, distillation, and column chromatography
2. Performed qualitative and quantitative analysis on synthesized compounds with UV/vis spectroscopy, nuclear magnetic resonance spectroscopy (NMR), infrared (IR) spectroscopy, NMR Imaging

Skills

1. IQmol (2 years)
2. Qchem (2 years)
3. Bash/Unix (2 years)
4. Gaussian (2 years)
5. Microsoft Office Suite
 - a. Advanced knowledge in Excel
6. Spectroscopy
7. Chromatography
8. Data Analysis
9. Quantitative Analysis
10. Statistical Analysis
11. Research & Development
12. Organizational Skills
13. Project Management

Awards & Scholarships

President's List

Georgia State University—Atlanta, GA

December 2019



NSF-SSTEM Scholarship

Georgia State University—Atlanta, GA

August 2018 to December 2019

Georgia HOPE Scholarship

Georgia State University—Atlanta, GA

May 2016 to December 2019

First Place Poster Presentation

USRS/CGSA Chemistry Research Symposium at Georgia State University—Atlanta, GA

April 2019

Al Baumstark Undergraduate Research Award

Georgia State University—Atlanta, GA

April 2019

NSF-LSAMP Fellowship

Georgia State University—Atlanta, GA

August 2017 April 2019

Groups & Organizations

Technology Fee Committee

Georgia State University—Atlanta, GA

February 2021

1. Strategic allocation of revenues for the direct benefit of students' educational objectives in academic programs

Women in Physics

Georgia State University—Atlanta, GA

January 2021 to Present

1. Empowering graduate and undergraduate members (particularly female-identifying and other underrepresented minority scientists) in research and career development

American Chemical Society (ACS)

January 2019 to Present

The Gozem Lab

Georgia State University—Atlanta, GA

August 2019 to Present

The Henary Lab

Georgia State University—Atlanta, GA

August 2017 to April 2019

Poster Presentations

1. Casa, Stefanie; Tarleton, Astrid; Rotolo, Laura; Henary, Maged. Design and Synthesis of novel NIR II Cyanine Dyes. USRS/GGSA Chemistry Research Symposium, Atlanta, GA, April 12, 2019.
2. Casa, Stefanie; Tarleton, Astrid; Rotolo, Laura; Henary, Maged. Design and Synthesis of novel NIR II Cyanine Dyes. Georgia State University GSURC Undergraduate Research Conference, Atlanta, GA, April 10, 2019.



3. Casa, Stefanie; Tarleton, Astrid; Rotolo, Laura; Henary, Maged. Design and Synthesis of novel NIR II Cyanine Dyes. Fall STEM Research Conference, Atlanta, GA, October 26, 2018.
4. Casa, Stefanie; Tarleton, Astrid; Rotolo, Laura; Henary, Maged. Design and Synthesis of novel NIR II Cyanine Dyes. Herty Medalist Undergraduate Research Symposium, Lawrenceville, GA, September 21, 2018.
5. Tarleton, Astrid; Rotolo, Laura; Henary, Maged. Design and Synthesis of novel NIR II Cyanine Dyes. American Chemical Society Georgia Section Research Symposium, Atlanta, GA, July 26, 2018.
6. Casa, Stefanie; Tarleton, Astrid; Rotolo, Laura; Henary, Maged. Synthesis of a Water-Soluble Gallium Phthalocyanine for *in vivo* Imaging. GA AL LSAMP Symposium, Carrollton, GA, April 7, 2018.
7. Casa, Stefanie; Tarleton, Astrid; Henary, Maged. Review of Synthesis and Medical Applications of Fluorine Containing Heterocycles. Spring STEM Research Conference, Atlanta, GA, March 30, 2018.



