

Katherine A. Valentine

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Education:

Virginia Polytechnic Institute, Blacksburg, VA

Graduation expected 2019

Degree: PhD in Polymer Chemistry

Topic: Synthesis and Characterization of Novel Liquid Crystalline Polyesters

GPA: 3.68, *Completed Candidacy Exam*

Rochester Institute of Technology, Rochester, NY

Graduated May 2014

Degree: BS in Chemistry

GPA: 3.83

Honors and Awards:

Undergraduate Award in Analytical Chemistry

May 2014

Nathaniel Rochester Merit Scholarship

September 2013 -- May 2014

RIT College of Science Undergraduate Summer Research Fellowship

Summer 2011

Research Experience:

Graduate Research

December 2014 -- Present

Virginia Polytechnic Institute, Blacksburg, VA

Advisor: Dr. Timothy Long

Project Title: Synthesis and Characterization of Biphenyl Containing Liquid Crystalline Polyesters

Undergraduate Research

RIT Chemistry Department, Rochester, NY

Advisor: Dr. Christina Collison

January 2012 -- May 2014

Project Title: *The Organic Synthesis of Aplydactone*

Developing a process for the synthesis of the natural product Aplydactone.

Advisor: Dr. Scott Williams

January 2011 -- January 2012

Project Title: *Antimalarial Drug Interactions with Hematin*

Tested the binding interaction between Hematin and the antimalarial drug Lumefantrine.

Presentations:

Valentine, Katherine; Long, Timothy. "Thermotropic Telechelic Polyester Ionomers for High Performance Applications."

Poster Presentation. Virginia Tech Macromolecules Innovation Institute Technical Review, Blacksburg, VA, United States, October 11, 2016.

Valentine, Katherine; Long, Timothy. "Liquid Crystalline Polyesters Exhibiting a Smectic CA Mesophase." Poster

Presentation. Virginia Tech Macromolecules Innovation Institute Technical Review, Blacksburg, VA, United States, October 10, 2016.

Valentine, Katherine; Long, Timothy. "Thermotropic Telechelic Ionomers for High Performance Applications." Poster

Presentation. 12th National Graduate Research Polymer Conference, Akron, Ohio, United States, June 20, 2016.

Valentine, Katherine; Serrine, Justin; Long, Timothy. "Photocurable Oligomers for Tunable Adhesion." Poster Presentation.

Virginia Tech Macromolecules and Interfaces Institute Technical Review, Blacksburg, Virginia, United States, April 20, 2015.

Valentine, Katherine; Kelly, Austin; Collison, Christina. "Studies Toward the Total Synthesis of Aplydactone: A Model Study." Poster Presentation. Nazareth College 40th Annual Rochester Academy of Science Paper Session, Pittsford, New York, United States, November 9, 2013.

Valentine, Katherine; Kelly, Austin; Collison, Christina. "Studies Toward the Total Synthesis of Aplydactone: A Model Study." Poster Presentation. SUNY Brockport 57th Annual Undergraduate Research Symposium, Brockport, New York, United States, April 27, 2013.

Valentine, Katherine; Williams, Scott. "Determination of Anti-Malarial Drug Interactions with Hematin." Poster Presentation. Rochester Institute of Technology Undergraduate Research Symposium, Rochester, New York, United States, August 12, 2011.

Valentine, Katherine; Sudhakar, Avani; Williams, Scott. "Lumefantrine-Hematin Binding Interactions that Inhibit Hemozoin Formation." Poster Presentation. University of Rochester 56th Annual Undergraduate Research Symposium, Rochester, New York, United States, April 30, 2011.

Technical Skills:

Laboratory Skills:

Proficient in melt polycondensation and acidolysis polymerization, thermal gravimetric analysis, differential scanning calorimetry, NMR, dynamic mechanical analysis, optical microscopy, and tensile analysis.

Familiar with heat deformation temperature analysis, thermal gravimetric sorption analysis, melt rheological analysis, UV-Vis spectroscopy, IR spectroscopy, size exclusion chromatography, and production scale development of coatings.

Computer Skills:

Skilled in the use of ChemDraw, MestReNova (NMR), TA Universal Analysis, and Trios programs.

Significant Graduate Courses:

Synthesis and Reaction of Macromolecules, Advanced Organic Chemistry, Advanced Macromolecular Chemistry, Polymer Physics, Polymer Viscoelasticity, and Polymer Morphology

Activities:

POLY-co-PMSE (ACS POLY/PMSE Student Chapter): Founder, Vice President

February 2016 -- Present

ACS Polymer Short Course at Virginia Tech: Laboratory Assistant

May 2015 -- Present

American Chemical Society: Member

December 2012 -- Present

Women in Science and Engineering at RIT: Member

January 2012 -- May 2014

ChemClub: Executive Board Member

September 2011 -- May 2014

Work Experience:

Graduate Teaching Assistantship

September 2016 -- Present

General Chemistry Lab Instrument Specialist

Virginia Polytechnic Institute, Blacksburg, VA

Responsible for maintenance and troubleshooting of seven gas chromatography-mass spectrometers, seven atomic adsorption spectrometers, and seven UV-Vis spectrometers for the general chemistry lab courses.

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Graduate Research Assistantship

May 2015 -- August 2016

Industrially Funded Researcher

Virginia Polytechnic Institute, Blacksburg, VA

Responsible for performing research in areas of interest to industrial partner, accountable for monthly research updates.

Graduate Teaching Assistantship

September 2014 -- May 2015

Organic Chemistry Lab Instructor and Tutor

Virginia Polytechnic Institute, Blacksburg, VA

Responsible for maintaining the safety of the students and contributing to their growing knowledge of organic chemistry in a weekly lab course.

MSDS Coordinator

November 2012 -- May 2014

Chemistry Department MSDS Coordinator

RIT, Rochester, NY

Responsible for the input of incoming MSDS Sheets and the conversion of old MSDS Sheets to a digital form.

Research and Development Summer Internship

May 2013 -- August 2013

R&D Department Intern

Saint Gobain ADFORS, Albion, NY

Responsible for optimizing the coating formulations in addition to other projects.

USDA Agricultural Testing

May 2012 -- August 2012

USDA Chemical Analyst

RIT, Rochester, NY

Responsible for the testing of 3,000 incoming samples per day in a high-paced group environment.

Freshman Orientation Assistant

August 2011 -- September 2012

Orientation Assistant for the Incoming Class of Freshman

RIT, Rochester, NY

Responsible for guiding the students around campus and integrating them into their new college life during the first week of school.