

CURRICULUM VITAE

AnGayle K. Vasiliou

Middlebury College Department of Chemistry and Biochemistry

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EDUCATION

Postdoctoral Associate, Chemical Engineering, January 2012 - June 2013

Massachusetts Institute of Technology

Research Advisor: Prof. William Green, Chemical Engineering

Ph.D., Physical Chemistry, December 2011

University of Colorado Boulder, CO

Research Advisor: Prof. G. Barney Ellison, Physical Organic Chemistry

B.A., Major: Chemistry, May 2005

Wheaton College, Norton, MA

Research Advisor: Prof. Laura Muller, Physical Chemistry

POSITIONS

Assistant Professor, Middlebury College, Middlebury, VT

Department of Chemistry and Biochemistry (2013-present)

Research Assistant, National Renewable Energy Laboratory, Golden, CO

Renewable Fuels Division (2005-2011)

Teaching Assistant, University of Colorado, Boulder, CO

Department of Chemistry (2005 -2007)

High School Teacher, Vela High School, Umtata, South Africa

Chemistry Teacher (2003-2004)

Publications (Middlebury student authors marked with asterisk)

Publications 1-6 at Middlebury College

1. Vasiliou, A.K.; Kim, J.; Ormond, T.; Piech, K.; Urness, K.; Sheer, A.; Robichaud, D.; Mukarakate, C.; Nimlos, M.R.; Daily, J.W.; Gaun, Q.; Carstensen, H.H.; Ellison, G.B. Biomass Pyrolysis: Thermal decomposition mechanism of furfural and benzaldehyde. *J. Chem. Phys.* 2013, 139, 104310.

2. Prozument, K.; Park, B.G.; Shaver, R.G.; Vasiliou, A.K.; Oldham, J.M.; David, D.E.; Muentzer, J.S.; Stanton, J.F.; Suits, A.G.; Ellison, G.B.; Field, R.W. Chirped-Pulse Millimeter-Wave Spectroscopy for Dynamics and Kinetics Studies for Pyrolysis Reactions. *Phys. Chem. Chem. Phys.* 2014, 16, 15739.

Selected as the cover article

3. Vasiliou, A.K.; Anderson, D.E.*; Cowell, T.W.*; Kong, J.*; Melhado, W.F.*; Phillips, M.D.*; Whitman, J.C.* Thermal Decomposition Mechanism for Ethanethiol. *J. Phys. Chem. A* 2017, 121, 4953-4960.

Article featured in Virtual Issue that highlights research performed at Primarily Undergraduate Institutions, published in The Journal of Physical Chemistry A/B/C/Letters, 2019, <https://pubs.acs.org/page/jpchax/vi/jpc-pui>

4. Vasiliou, A.K.; Hu, H.; Cowell, T.W.*; Whitman, J.C.*; Porterfield, J.; Parish, C.A. Modeling Oil Shale Pyrolysis: High-Temperature Unimolecular Decomposition Pathways for Thiophene. *J. Phys. Chem. A* 2017, 121, 7655-7666.

5. Middaugh, J.E.; Buras, Z.J.; Matrat, M.; Chu, T.C.; Kim, Y.S.; Alecu, I.M.; Vasiliou, A.K.; Goldsmith, C.F.; Green, W.H. A Combined Photoionization Time-of-Flight Mass Spectrometry and Laser Absorption Spectrometry Flash Photolysis Apparatus for Simultaneous Determination of Reaction Rates and Product Branching. *Rev. Sci. Instrum.* 2018, 89, 074102.

6. Class, C.A.; Vasiliou, A.K.; Kida, Y.; Timko, M.T.; Green, W.H. Detailed Kinetic Model for Hexyl Sulfide Pyrolysis and its Desulfurization by Supercritical Water. *Phys. Chem. Chem. Phys.* 2019, 21, 10311-10324.

Selected as a 2019 PCCP HOT Article

7. Vasiliou, A.; Piech, K.; Zhang, X.; Reed, B.; Nimlos, M.R.; Ahmed, M.; Golan, A.; Kostco, O.; Osborn, D.L.; David, D.E.; Urness, K.N.; Daily, J.W.; Stanton, J.F.; Ellison, G. B. Thermal Decomposition of CH₃CHO Studied by Matrix Infrared Spectroscopy and Photoionization Mass Spectroscopy. *J. Chem. Phys.* 2012, 137, 164308.

8. Vasiliou, A.; Piech, K.; Zhang, X.; Reed, B.; Nimlos, M.R.; Ahmed, M.; Golan, A.; Kostco, O.; Osborn, D.L.; Daily, J.W.; Stanton, J.F.; Ellison, G.B. The Products of Thermal Decomposition of CH₃CHO. *J. Chem. Phys. Comm.* 2011, 135, 104310

9. Vasiliou, A.; Nimlos, M.R.; Daily, J.W.; Ellison, G.B. Thermal Decomposition of Furan Generates Propargyl Radicals. *J. Phys. Chem. A* 2009, 113, 8540.

Manuscripts in Preparation

Dutton, S.E.*; Phillips, M.D.*; Evans, H.T., Hemberger, P.*; Bodi, A.; Vasiliou, A.V. Thermal Decomposition Mechanism of Diethyl Sulfide and Dimethyl Disulfide Studied by Matrix Isolation Spectroscopy and Photoelectron Photoionization Coincidence (i^2 PEPICO) Spectroscopy. *In preparation for submission to J. Phys. Chem. A* (Summer 2022)

Phillips, M.D.*; Dutton, S.E.*; Hemberger, P.; Bodi, A.; Vasiliou, A.V. Photoelectron Spectra of Methyl Perthiyl Radical (CH₃SS) with Double Velocity Map Imaging Photoelectron Photoion Coincidence Spectroscopy. *In preparation for submission to J. Phys. Chem. A*. (Summer 2022)

Funding

P20-GM-103449 (\$75,000) June 2014–May 2015

Vasiliou, A.K. *Thermal Decomposition of Biomass*. Institutional Development Award (IDeA) from the National Institute of General Medical Sciences Faculty Project Award.

P20-GM-103449 (\$75,000) June 2015–May 2016

Vasiliou, A.K. *Thermal Decomposition of Biomass*. Institutional Development Award (IDeA) from the National Institute of General Medical Sciences Faculty Project Award.

P20-GM-103449 (\$75,000) June 2016–May 2017

Vasiliou, A.K. *Thermal Decomposition of Biomass*. Institutional Development Award (IDeA) from the National Institute of General Medical Sciences Faculty Project Award.

NSF-RUI-1566282 (\$180,000) August 2016 – July 2020

Vasiliou, A.K. *RUI: Sulfur Chemistry: Molecular Mechanisms*. National Science Foundation, Chemistry Division.

PRF-56726-UNI4 (\$55,000) September 2016 – August 2019

Vasiliou, A.K. *Sulfur Chemistry: Molecular Mechanisms*. American Chemical Society, Petroleum Research Fund, Physical Organic Division.

Undergraduate Summer Shwe Yee Mon '99 Memorial Fellowship (\$2,835)

Middlebury College summer funding for Middlebury student Daniel Anderson (CHEM '16) to work in my lab during the summer of 2015 on the project *Computational Physical Chemistry*.

Undergraduate Summer Research Easton Endowed Research Fund (\$5,100)

Middlebury College summer funding for Middlebury student Toby Aicher (MBBC '16.5) to work in my lab during the summer of 2014 on the project *Thermal Decomposition of Biomass: Molecular Pathways for Sulfur Chemistry*.

Recent Invited Lectures at Primary Undergraduate Institutions and Universities

- “*Thermal Conversion of Biomass: A Molecular Viewpoint.*” Department of Chemistry, Wake Forest University (2015)
- “*Sulfur Chemistry: A Molecular Viewpoint.*” Castleton University, (2016)
- “*Thermal Decomposition of Sulfur Species.*” Wesleyan University (2017)
- “*Sulfur Chemistry: Thiophene and Ethanethiol Thermal Decomposition.*” Richmond University (2017)
- “A “Fresh” Look at Thermal Decomposition of Sulfur Species.” Colby College (2018)
- “*Characterizing Thermal Decomposition Mechanisms using Matrix Isolation and Photoionization Mass Spectrometry.*” University of Colorado at Boulder (2020)
- “*Synchrotron Radiation for Elucidating Organic Gas Phase Reactions.*” University of Washington (2020)

Recent Conferences (Middlebury student attendees included, presenters*, poster**)

- Summer 2013 - 245th National Meeting of the American Chemical Society. - Speaker
- Spring 2015 - American Chemical Society National Meeting (Denver, CO). – Speaker
- Summer 2016 - International Symposium on Molecular Spectroscopy at the University of Illinois at Champaign-Urbana (Champaign-Urbana, IL). - Maggie Philips, Jared Whitman,* and Thomas Cowell
- Summer 2016 - Mercury Conference at Bucknell University (Lewisburg, PA). - Maggie Phillips*
- 2015, 2016, 2017 – Vermont Genetics Network Conference. - Jessica Kong,** Maggie Phillips,** Daniel Anderson,** William Melhado,** Jared Whitman,** and Thomas Cowell**
- Spring 2019 - American Chemical Society National Meeting (Orlando, FL). – **Invited Speaker** for ACS Award for Research at an Undergraduate Institution: Symposium in Honor of Carol A. Parish
- Summer 2019 - Gordon Conference for Physical Organic Chemistry. (Holderness, NH) – **Invited Speaker**
- Fall 2019 – Champlain Area Chemistry Symposium at the University of Vermont (Burlington, VT) - Hamilton Evans*
- Winter 2020 – 38th Northwest Regional Meeting on Kinetics and Dynamics at MIT (Cambridge, MA) – **Invited Speaker**, Hamilton Evans
- Summer 2020 – Invited to Co-Organize with Jacob Stewart from Connecticut College a Symposium on “Spectroscopy in the Classroom and Undergraduate Laboratory” at the International Symposium on Molecular Spectroscopy. (University of Illinois Champaign-Urbana (Champaign-Urbana, IL)

Research Trips

- Winter 2015 - Research Trip to collaborator’s lab at the University of Colorado at Boulder - Middlebury students William Melhado and Daniel Anderson accompanied me and collected data.
- Winter 2018 - Research Trip to collaborators at the Paul Scherrer Institute to work on the Swiss Light Synchrotron Light Source (Villigen, Switzerland) – Maggie Philips and Sarah Dutton accompanied me and collected data on Vacuum Ultraviolet Radiation Beamline.

Recent Professional Activities and Affiliations

245th American Chemical Society National Meeting Invited Section Chair for Physical Chemistry Division (2013)
Referee, National Science Foundation: Centers for Chemical Innovation (CCI) Program
Referee, National Science Foundation: Chemical Structure Dynamics and Mechanisms Program (CSDM-B)
Reviewer, ACS Petroleum Research Fund
Reviewer, *Journal of the American Chemical Society*
Reviewer, *Journal of Physical Chemistry*
Reviewer, *Journal of Physical Chemistry Chemical Physics*
Reviewer, *Energy and Fuel*
American Chemical Society (2005-Present)
American Institute of Chemical Engineers (2007-Present)
American Chemical Society Energy and Fuels (2010-Present)
Member of the STEM summer ¹POSSE Planning Team (2015-Present)
Active member of the Middlebury STEM pedagogy working group (2015-Present)
Formal Mentor for the ²UR-STEM Student Group (2016-Present)
Faculty Supervisor for American Chemical Society Middlebury College Student Chapter (2016-Present)
Member of the Spring Student Symposium Committee (2014-Present)
Oral Session Moderator: Middlebury College Spring Symposium³ (2015, 2016)
Oral Session Moderator: Middlebury College Faculty Research Forum (2019)
Faculty Panelist “*Preparation and Possibilities*” Sophomore Conference (2016)
Faculty Panelist “*Women in Science*” for women Middlebury STEM majors (2015)
Faculty Panelist for the Keasbey Scholarship Mock interview for Middlebury Student National Nominee (2015)

¹ The Posse Foundation (<https://www.possefoundation.org/>), was founded in 1989, provides academic support and leadership training for public high school students with extraordinary academic and leadership potential, but who might otherwise be overlooked during traditional college application processes. Middlebury was the fourth school in the country to participate as a POSSE partner institution in 1998. In 2015, Middlebury introduced its first STEM-focused Posse cohort.

² UR-STEM is a student run organization created in 2017 with the “mission to normalize the participation in STEM classes and careers, bridge the academic gap in students from different backgrounds and improve retention of underrepresented students in STEM fields by provide support systems and essential resources for success.” (<https://urstem.wixsite.com/urstem>)

³ <http://www.middlebury.edu/academics/resources/ctr/students/uro/symposium>

Middlebury College Research Students in Vasiliou Lab

| Student (Graduation) | Participation | Subsequent Degree or Employment |
|-------------------------|---------------|--|
| Jessica Kong ('15) | S, A, T | Graduate School, Ph.D Chemistry (University of Washington – Ginger Lab) |
| Colin McIntyre ('15) | S, A | Research Analyst, Brattle Group |
| William Melhado ('16) | S, A, T | High School Chemistry Teacher |
| Daniel Anderson ('16) | S, A, T | Business Intelligence Analyst, Wayfair |
| Shelby Redfield ('16) | A, S | Senior Associate Scientist at KSQ Therapeutics, Inc. |
| Toby Aicher ('17.5) | A, S | Research Technician, Shalek and Walker Lab |
| Jared Whitman ('17) | S, A, T | Medical School (<i>matriculation Fall 2019</i>) |
| Thomas Cowell ('17) | S, A, T | Graduate School, Ph.D Chemistry (University of Illinois, Urbana-Champaign - Han Group) |
| Stuart Yandell ('17) | S, A | Author |
| Stergiani Lentzou ('18) | S | Research Assistant, New York University - Abu Dhabi , United Arab Emirates |
| Maggie Philips ('19) | S, A, T | AmeriCorp Artist Year Fellow Philadelphia, PA (August 2019 – August 2020) |
| Shougat Barua ('19) | A | <i>Medical School (anticipated 2021)</i> |
| Sarah Dutton ('19) | S, A, T | Graduate School, Ph.D Chemistry (Caltech) |
| Maleka Stewart ('19) | S, A | Graduate School, (<i>anticipated 2020</i>) |
| Nathan Ng ('19) | S, A | Medical School, (<i>anticipated 2021</i>) |
| Soyibou Sylla ('20) | S, A, | Graduate School (<i>anticipated 2020</i>) |
| Hamilton Evans ('20) | S, A, T | Graduate School, Ph.D Chemistry (Caltech) |
| Priya Kaur ('22) | A | |
| Jane Nelson('22) | A | |

(a) S = Summer(s); A = Academic Term(s) for Credit; T = Thesis Project (fall, winter, spring).