

# Mary Jane Simpson

## Current Position

Middlebury College, Middlebury, VT July 2016 – present  
**Assistant Laboratory Professor**  
Department of Chemistry and Biochemistry

## Education

Oak Ridge National Laboratory, Oak Ridge, TN  
**Postdoctoral Research Associate** August 2014 – May 2016  
Project: “Femtosecond Transient Absorption Microscopy of Perovskite Thin Films”

Duke University, Durham, NC  
**Ph.D. in Chemistry** August 2009 – April 2014  
Dissertation: “Melanin Chemistry Revealed by Excited State Dynamics and the Resulting Biological Implications”  
**Certificate in College Teaching**

Stetson University, DeLand, FL  
**B.S. in Chemistry** August 2006 – May 2009  
Thesis: “Investigating Copper-Thiophene Binding Interactions”

## Teaching Experience

Middlebury College, Middlebury, VT  
**General Chemistry Lab** Fall 2016 - Present  
**General Chemistry Lecture** Spring 2018 and Fall 2020

Duke University, Durham, NC  
**Chemistry and Physics of Cooking** (Teaching Fellow) Spring 2013

Duke University, Durham, NC  
**General Chemistry and Organic Chemistry** (Teaching Assistant) Fall 2009 – Fall 2011

## College Service

Health Professions Committee Fall 2019 - Present  
New Faculty Mentor Fall 2019 - Fall 2020  
Faculty Advisor to ACS Club Spring 2019 - Present  
Faculty Advisor to Leading Women of Tomorrow Fall 2020 - Present  
Senior Thesis Committee Spring 2017, Spring 2019

## Community Service

<b>Ilsley Public Library</b> , Middlebury, VT Prepared STEM kits and a science lesson for children to use at home	Summer 2020 - Present
Demonstrated chemistry to children at the library	Winter 2018 - Spring 2020
<b>Mary Hogan Elementary</b> , Middlebury, VT Demonstrated chemistry to children in classrooms	Fall 2017 - Spring 2020
<b>Hockey and Soccer Coach</b> , Middlebury, VT Served as assistant coach for Mite hockey and U6 soccer teams	Summer 2020 - Present

## Select Professional Development

STEM Pedagogy Group Member	Spring 2018 - Present
Inclusive Practitioners Program	Summer 2020 - Present
Camp "Design Online"	Summer 2020
"Project Based Learning" Series	Winter 2020
"Anti-Racism as an Everyday Practice" Series	Summer 2020
"From Scholarship to Pedagogy: Our Students, Our Culture, and Our Learning Goals" Middlebury College Annual Teaching and Writing Retreat	Summer 2019
"STEM Peer Mentoring Study Groups" Workshop	Winter 2019
"STEM Skills Through Inquiry Introduction:" A Workshop on Active Learning	Summer 2017

## Publications

- Doughty, B., **Simpson, M. J.**, Das, S., Xiao, K., & Ma, Y. (2020). Connecting Femtosecond Transient Absorption Microscopy with Spatially Co-Registered Time Averaged Optical Imaging Modalities. *Journal of Physical Chemistry A*, 124, 3915 – 3923.
- Ma, Y.-Z., Doughty, B., **Simpson, M. J.**, Das, S., & Xiao, K. (2019). On the Origin of Spatially Dependent Electronic Excited-State Dynamics in Hybrid Mixed Perovskite Thin Film. *Lithuanian Journal of Physics*, 58(4), 326–336.
- Simpson, M. J.**, Doughty, B., Das, S., Xiao, K., & Ma, Y.-Z. (2017). Separating Bulk and Surface Contributions to Electronic Excited-State Processes in Hybrid Mixed Perovskite Thin Films via Multimodal All-Optical Imaging. *The Journal of Physical Chemistry Letters*, 8, 3299–3305.
- Simpson, M. J.**, Doughty, B., Yang, B., Xiao, K., & Ma, Y.-Z. (2016). Imaging electronic trap states in perovskite thin films with combined fluorescence and femtosecond transient absorption microscopy. *The Journal of Physical Chemistry Letters*, 7, 1725–1731.
- Doughty, B., **Simpson, M. J.**, Yang, B., Xiao, K., & Ma, Y.-Z. (2016). Simplification of femtosecond transient absorption microscopy data from CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> perovskite thin films into decay associated amplitude maps. *Nanotechnology*, 27, 1–10.
- Simpson, M. J.**, Doughty, B., Yang, B., Xiao, K., & Ma, Y.-Z. (2016). Separation of Distinct Photoexcitation Species in Femtosecond Transient Absorption Microscopy. *ACS Photonics*, 3, 434–442.

- Simpson, M. J.**, Doughty, B., Yang, B., Xiao, K., & Ma, Y.-Z. (2015). Spatial Localization of Excitons and Charge Carriers in Hybrid Perovskite Thin Films. *The Journal of Physical Chemistry Letters*, 6, 3041–3047.
- Wilson, J. W., Degan, S., Gaine, C. S., Mitropoulos, T., **Simpson, M. J.**, Zhang, J. Y., & Warren, W. S. (2014). Comparing in vivo pump–probe and multiphoton fluorescence microscopy of melanoma and pigmented lesions. *Journal of Biomedical Optics*, 20(051012), 13.
- Simpson, M. J.**, Wilson, J. W., Robles, F. E., Dall, C. P., Glass, K., Simon, J. D., & Warren, W. S. (2014). Near-Infrared Excited State Dynamics of Melanins: The Effects of Iron Content, Photo-Damage, Chemical Oxidation, and Aggregate Size. *The Journal of Physical Chemistry A*, 118, 993–1003.
- Simpson, M. J.**, Wilson, J. W., Phipps, M. A., Robles, F. E., Selim, M. A., & Warren, W. S. (2013). Nonlinear Microscopy of Eumelanin and Pheomelanin with Subcellular Resolution. *Journal of Investigative Dermatology*, 133, 1822–1826.
- Simpson, M. J.**, Glass, K. E., Wilson, J. W., Wilby, P. R., Simon, J. D., & Warren, W. S. (2013). Pump–Probe Microscopic Imaging of Jurassic-Aged Eumelanin. *Journal of Physical Chemistry Letters*, 4, 1924–1927.
- Matthews, T. E., Wilson, J. W., Degan, S., **Simpson, M. J.**, Jin, J. Y., Zhang, J. Y., & Warren, W. S. (2011). In vivo and ex vivo epi-mode pump-probe imaging of melanin and microvasculature. *Biomedical Optics Express*, 2, 1576–1583.
- Matthews, T. E., Piletic, I. R., Selim, M. A., **Simpson, M. J.**, & Warren, W. S. (2011). Pump-Probe Imaging Differentiates Melanoma from Melanocytic Nevi. *Science Translational Medicine*, 3(71ra15).

## Select Presentations

- “Multidimensional Analysis of Unlabeled Data”  
Presentation and Panel Discussion  
Women in Computer Science, Middlebury College, Middlebury, VT 2018
- “Backwards Course Design”  
Oral Presentation  
STEM Pedagogy Group, Middlebury College, Middlebury, VT 2018
- “Investigating the Metastatic Potential and Pigment Chemistry of Melanomas Using Pump-Probe Imaging”  
Invited Oral Presentation  
*Photonics West*, San Francisco, CA 2013
- “Investigating the Metastatic Potential and Pigment Chemistry of Melanomas Using Pump-Probe Imaging”  
Featured Breakfast Poster Presentation  
*Fitzpatrick Institute for Photonics at Duke University*, Duke University, NC 2013
- “Pump-Probe Imaging of Melanin Identifies Metastatic Potential of Melanoma”  
Oral Presentation  
*Frontiers in Optics and Laser Science*, Rochester, NY 2012

- “Imaging the Distribution of Melanin in Human Skin Lesions with Pump-Probe Microscopy”  
 Oral Presentation  
*Frontiers in Optics and Laser Science*, San Jose, CA 2011
- “Beyond Pathology: Pump-Probe Imaging of Skin Slices Provides Additional Indicators of Melanoma”  
 Oral Presentation  
*Novel Techniques in Microscopy*, Monterey, CA 2011

## Awards

- Poster Prize, *Southeast Ultrafast Conference* January 2016
- Supplemental Performance Award, *Oak Ridge National Laboratory* December 2015
- Kathleen Zielek Fellowship, *Duke University Chemistry Department* May 2013
- Burroughs-Wellcome Fellowship, *Duke University Chemistry Department* May 2012
- Poster Prize, *Duke Center for In Vivo Microscopy* May 2012
- Poster Prize, *International Federation of Pigment Cell Societies* October 2011
- Poster Prize, *Fitzpatrick Institute for Photonics at Duke University* October 2011
- Travel Award, *International Federation of Pigment Cell Societies* June 2011
- Outstanding Senior in Chemistry, *Stetson University* May 2009
- Award for Achievement in Analytical Chemistry, *American Chemical Society* May 2008
- Award for Achievement in Organic Chemistry,  
*National Information Center in Polymer Education* May 2007

## Memberships

- American Chemical Society 2009 – present