# MARY JANE SIMPSON

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## *EDUCATION*

**DUKE UNIVERSITY** **2009-Present**
Ph.D. Candidate
Department of Chemistry
Advisor: Professor Warren S. Warren
Expected Graduation: May 2014
GPA: 3.65

**DUKE UNIVERSITY** **2014**
Certificate in College Teaching

**STETSON UNIVERSITY** **2006-2009**
Bachelor of Science, Chemistry, *Cum Laude*

## *HONORS AND* AWARDS

**Kathleen Zielek Fellowship** **2013**
Duke University Department of Chemistry

**Poster Prize** **2012**
Duke Center for *In Vivo* Microscopy Annual Meeting

**Burroughs-Wellcome Fellowship** **2012**
Duke University Department of Chemistry

**Poster Prize in Melanins Category** **2011**
International Pigment Cell Conference

**IFPCS Travel Award to Conference in Bordeaux, France** **2011**
International Federation of Pigment Cell Societies

**1st Place Poster Presentation** **2010**
Fitzpatrick Institute for Photonics Annual Meeting

**Outstanding Senior Award**
Stetson University Department of Chemistry **2009**

**Undergraduate Award in Analytical Chemistry**
American Chemical Society **2008**

**Award for Achievement in Organic Chemistry**
National Information Center for Polymer Education **2007**

## *PUBLICATIONS*

**M. J. Simpson**, J. W. Wilson, C. P. Dall, K. E. Glass, J. D. Simon, W. S. Warren, "Near Infrared Excited State Dynamics of Melanins: the Effects of Iron Content, Photo-Damage, Chemical Oxidation, and Aggregate Size" *Journal of Physical Chemistry A,* in preparation.

**M. J. Simpson**, K. E. Glass, J. W. Wilson, P. Wilby, J. D. Simon, W. S. Warren, "Pump-Probe Microscopic Imaging of Jurassic-Aged Eumelanin," *Journal of Physical Chemistry Letters*, **4** (11), 1924-1927 (2013).

**M. J. Simpson**, J. W. Wilson, M. A. Phipps, F. E. Robles, M. A. Selim, W. S. Warren, "Nonlinear Microscopy of Eumelanin and Pheomelanin with Subcellular Resolution," *Journal of Investigative Dermatology*, **133**, 1822-1826 (2013).

T. E. Matthews, J. W. Wilson, J. Y. Zhang, **M. J. Simpson**, J. Y. Jin, W. S. Warren, "In vivo and ex vivo epi-mode pump-probe imaging of melanin and microvasculature," *Biomedical Optics Express*, **2**, 1576-1583 (2011).

J. Wilson, T. Matthews, S. Degan, J. Zhang, **M. J. Simpson**, W. Warren, "Pump-Probe Melanoma Imaging: Applications to High-Resolution and In-Vivo Microscopy," postdeadline paper PDPB5, CLEO 2011, Baltimore, MD.

T. E. Matthews, I. R. Piletic, M. A. Selim, **M. J. Simpson**, W. S. Warren, "Pump-probe imaging differentiates melanoma from melanocytic nevi," *Science Translational Medicine*, **3**, 71ra15 (2011).

## *PRESENTATIONS*

**"Examining Melanin Degradation with Pump-Probe Microscopy"**
Poster Presentation
*Fitzpatrick Institute for Photonics Annual Meeting*, Durham, NC, USA
11 March 2013

**"Investigating the Metastatic Potential and Pigment Chemistry of Melanomas Using Pump-Probe Imaging"**
Invited Oral Presentation
*Photonics West*, San Francisco, CA, USA
2 February 2013

**"Investigating the Metastatic Potential and Pigment Chemistry of Melanomas Using Pump-Probe Imaging"**
Featured Poster Presentation
*Fitzpatrick Institute for Photonics Breakfast*, Durham, NC, USA
9 November 2012

**"Investigating the Metastatic Potential and Pigment Chemistry of Melanomas Using Pump-Probe Imaging"**
Poster Presentation
*Center for In Vivo Microscopy Annual Meeting*, Durham, NC, USA
25 October 2012

**"Pump-Probe Imaging of Melanin Identifies Metastatic Potential of Melanoma"**
Oral Presentation
*Frontiers in Optics and Laser Science,* Rochester, NY, USA
16 October 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, USA
17 October 2011

"**Imaging the Distributions of Eumelanin and Pheomelanin in Human Tissue"**
Poster Presentation
*Fitzpatrick Institute for Photonics Annual Meeting*, Durham, NC, USA
11 October 2011

**"Imaging the Distributions of Eumelanin and Pheomelanin in Human Tissue"**
Poster Presentation
*International Pigment Cell Conference*, Bordeaux, FR
21 September 2011

**"Beyond Pathology: Pump-Probe Imaging of Skin Slices Provides Additional Indicators of Melanoma"**
Oral Presentation
*Novel Techniques in Microscopy*, Monterey, CA, USA
4 April 2011

**"Novel Melanin Imaging Technique Provides Intrinsic Chemical Contrast and Melanoma Diagnostic Capability"**
Poster Presentation
*Fitzpatrick Institute for Photonics*, Durham, NC, USA
27 October 2010

***TEACHING***

**Chemistry and Physics of Cooking Co-Instructor** **Spring 2013**
Planning and co-teaching a freshmen seminar course on the chemistry and physics of cooking in collaboration with Dr. Charbonneau

**Recitation Teaching Assistant** **Spring/Fall 2011**
General Chemistry, CHEM 32
**Laboratory Teaching Assistant**
Organic Chemistry, CHEM 151 **Spring 2010**
General Chemistry, CHEM 31 **Fall 2009**

***VOLUNTEER WORK***

**Science Outreach Projects** **2011 –**
Created an optics outreach presentation to teach students at Seawall Elementary about lasers and optics; currently participate in many chemistry outreach events

**Tutoring School Children** **2011 – 2012**
Tutored at risk children in math and science. My main student was a high school sophomore learning algebra.

**Adult Basic Computer Skills Class** **2010 – 2011**
Wrote course modules and provided support for a class that taught low income, minority adults basic computer skills.

***PROFESSIONAL MEMBERSHIPS***

**American Chemical Society** **2009 –**
**American Physical Society** **2011 –**