

Sarah J. Schmidtke Sobeck

Address

College of Wooster
Department of Chemistry
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Contact Information

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Education **University of Minnesota, Department of Chemistry** **2000 – 2005**

Minneapolis, Minnesota

Ph.D., Physical Chemistry

Dissertation Title: Physical Properties and Dynamics of Hydrogen Bonding and Proton Transfer Compounds

Research Advisor: Dr. David Blank

Preparing Future Faculty Certificate (December 2004)

Marquette University

1996 – 2000

Milwaukee, Wisconsin

B.S. Chemistry and Mathematics, magna cum laude

Professional Experience **Professor** **2020 – Present**

Associate Dean for Experiential Learning **2020 – Present**

Associate Professor **2012 – 2020**

Assistant Professor **2006 – 2012**

Department of Chemistry, The College of Wooster, Wooster, OH

Classes Taught: Physical Chemistry I & II (lecture and lab), Introductory Chemistry (lecture and lab), Introduction to Independent Study, Biophysical Chemistry, non-majors courses, First Year Seminar.

Research Interests: photochemistry, spectroscopy, cultural heritage science.

Dean Roles: Oversee internship for credit process, facilitate faculty and staff EL training workshops, support EL work on campus and credentialed experiences, member of ELCE office in APEX, part of APEX leadership team.

Project MUSE Scholar

August 2019 – 2020

Newfields, Indianapolis Museum of Art, Indianapolis, IN

Dr. Gregory Smith (host)

Project: One year research leave. Research focus on analysis of the chemical make-up of daylight fluorescent pigments, and analysis of their photostability. Examination of the fading mechanism of the pigments, as well as potential means to stabilize them for preservation and exhibition.

Visiting Associate Professor

Summer-Fall 2014

Institute for the Preservation of Cultural Heritage, Yale University, New Haven, CT

Dr. Paul Whitmore (host)

Project: One year research leave. Research focus on the fundamental chemistry of the photo-induced degradation of cochineal, a red dye extracted from South American scale insects and used as an artist colorant, and the impact of different paint media upon its stability.

Visiting Assistant Professor Fall 2009
 Department of Chemistry, University of Alberta, Edmonton, Canada
 Dr. Glen Loppnow (host)
 Project: One semester research leave. Project focus on the solvent-dependent properties of a series of oxybenzone derivatives. Experimental and computational resonance Raman measurements were carried out on the systems in protic and aprotic solvents.

Research Experience Graduate Fellow 2000 – 2005
 Department of Chemistry, University of Minnesota, Minneapolis, MN
 Dr. David Blank (advisor)
 Research: Ultrafast nonlinear spectroscopy, computational modeling
 NSF REU Program Participant 1999
 Department of Chemistry, the Pennsylvania State University, State College, PA
 Dr. Karl Mueller (advisor)
 Research: Solid-state NMR spectroscopy
 NSF REU Program Participant 1998
 Department of Chemistry, Louisiana State University, Baton Rouge, LA
 Dr. Paul Russo (advisor)
 Research: Polymer, physical chemistry
 Quality Control Specialist, Dean Food & Specialty Products 1997
 Green Bay, WI
 Food chemistry, analytical methods

Teaching Experience Visiting Assistant Professor, Trinity University, San Antonio, TX 2005–2006
 Courses: Physical Chemistry I & II, Physical Chemistry Laboratory, Senior Integrated Laboratory, Introduction to Analytical Methods Laboratory, Lab Methods in Organic Chemistry

Undergraduate Mentoring, University of Minnesota, Minneapolis, MN 2005
 Duties: instruction and direction of undergraduate research student with Dr. David Blank, co-advise and direct research project, train student in research methods.

Preparing Future Faculty, University of Minnesota, Minneapolis, MN 2004
 Courses taken: Teaching in Higher Education and Practicum for Future Faculty

Graduate Teaching Assistant, University of Minnesota, Minneapolis, MN
 Course: Physical Chemistry II, Honors General Chemistry, Instrumental Analysis 2000–2

Undergraduate Teaching Assistant, Marquette University, Milwaukee, WI
 Course: General Chemistry Laboratory 1999-2000

Publications

1. Sarah J. Schmidtke Sobeck, Gregory D. Smith “Shedding Light on Daylight Fluorescent Artists’ Pigments, Part 2: Spectral Properties and Light Stability” *Journal of the American Institute for Conservation*, 2023 , 62 (3), 222-238.
2. Sarah J. Schmidtke Sobeck, Victor J. Chen, Gregory D. Smith “Shedding Light on Daylight Fluorescent Artists’ Pigments, Part 1: Composition” *Journal of the American Institute for Conservation*, 2022, 61 (4), 218-236.

3. Briana R. Schrage, Baylee R. Frisinger, Sarah J. Schmidtke Sobeck, Christopher J. Ziegler “Lipophilic $\text{Re}(\text{CO})_3$ pyca complexes for mid-IR imaging applications.” *Dalton Transactions*, 2021, 50, 1069–1075.
4. Catherine Boyles*, Sarah J. Schmidtke Sobeck “Photostability of Organic Red Food Dyes.” *Food Chemistry*, 2020, 315, 126249.
5. Haley A. Rossiter*, Kaitlynn M. Wilson Arnholt*, Evan Robinson*, Sarah J. Schmidtke Sobeck “Tuning the electron acceptor moiety of aminobenzoate derivatives and its spectroscopic impact.” *Journal of Photochemistry and Photobiology A: Chemistry*, 2017, 349, 238-243.
6. Leah M. Rader Bowers*, Sarah J. Schmidtke Sobeck “Impact of medium and ambient environment on the photodegradation of carmine in solution and paints.” *Dyes and Pigments*, 2016, 127, 18-24.
7. Jacob A. Boroff*, Zachery D. Matesich*, Daniela Canache Stuetzer*, Sarah J. Schmidtke Sobeck “Solvent impact on the photophysical properties and excited state behavior of *p*-aminobenzoic acids.” *Journal of Photochemistry and Photobiology A: Chemistry*, 2015, 305, 60-66.
8. Elisa Leyva, Sarah J. Schmidtke Sobeck, Silvia E. Loredó-Carrillo, Diego A. Magaldi-Lara “Spectral and structural characterization of 2-(fluorophenylamino)- and 2-(nitro-phenylamino)-1,4-naphthoquinone derivatives.” *Journal of Molecular Structure*, 2014, 1068, 1-7.
9. Sarah J. Schmidtke Sobeck “Solvent Effects on Electronic Absorption: Positive and Negative Solvatochromism.” *Chemical Educator*, 2013, 18, 099-103.
10. Mitchell P. Thayer*, Colin McGuire*, Elana M.S. Stennett*, Mary Kate Lockhart*, Daniela Canache*, Marnie Novak*, and Sarah J. Schmidtke “pH-Dependent Spectral Properties of *para*-Aminobenzoic Acid and its Derivatives.” *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 2011, 84, 227-232.
11. Brandi M. Baughman*, Elana Stennett*, Rachel E. Lipner*, Andrew C. Rudawsky*, and Sarah J. Schmidtke “Structural and Spectroscopic Studies of the Photophysical Properties of Benzophenone Derivatives.” *Journal of Physical Chemistry A*, 2009, 113, 8011-8019.
12. Sarah J. Schmidtke, Ph.D. Dissertation, “Physical Properties and Dynamics of Hydrogen Bonding and Proton Transfer Compounds.” University of Minnesota, 2005.
13. Sarah J. Schmidtke, David F. Underwood, and David A. Blank. “Probing excited-state dynamics and intramolecular proton transfer in 1-acylamino-anthraquinones via the intermolecular solvent response.” *Journal of Physical Chemistry A*, 2005, 109(32), 7033-7045.
14. Sarah J. Schmidtke, David F. Underwood, and David A. Blank. “Following the solvent directly during ultrafast excited state proton transfer.” *Journal of the American Chemical Society*, 2004, 126(28), 8620-8621.
15. Sarah J. Schmidtke, Laura A. MacManus-Spencer, Jamie J. Klappa, T. A. Mobley, Kristopher McNeill, and David A. Blank. “2-(2'-Pyridyl)pyrroles: Part I. Structure and energetics of Pyridylpyrroles, their Dimers, Complexes and Excited States.” *Physical Chemistry Chemical Physics*, 2004, 6(15), 3938-3947.

16. Laura A. MacManus-Spencer, Sarah J. Schmidtke, David A. Blank, and Kristopher McNeill. "2-(2'-Pyridyl)pyrroles: Part II. Spectroscopic Investigations of Pyridylpyrrole Alcohol Complexes." *Physical Chemistry Chemical Physics*, 2004, 6(15), 3948-3957.
17. Jamie J. Klappa, Sarah Geers, Sarah J. Schmidtke, Laura A. MacManus-Spencer, and Kristopher McNeill. "Pyridylpyrrolides as alternatives to cyclometalated phenyl-pyridine ligands: Synthesis and characterization of luminescent zinc and boron pyridyl-pyrrolide complexes." *Dalton*, 2004, 6, 883-891.
18. Sarah Schmidtke, Paul S. Russo, Javier Nakamatsu, Ebru Buyuktanie, Blige Turfan, Elana Temyanko, and Ioan Negulescu. "Thermoreversible Gelation of Isotropic and Liquid Crystalline Solution of a "Sticky" Rodlike Polymer." *Macromolecules*, 2000, 33(12), 4427-4432.
19. Sarah Schmidtke, Paul Russo, Javier Nakamatsu, Ioan Negulescu. "Gelation of a "sticky" rodlike polymer." *Polymeric Materials Science and Engineering*, 2000, 82, 326-327.

* indicates undergraduate student researcher

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| Presentations | <ol style="list-style-type: none"> 1. Dyes in History and Archaeology 42 Nov. 1, 2023
<i>"Blinded by the Light": Impact of Daylight Fluorescent Pigment Composition on Product Color and Light Stability</i>, poster. 2. Ohio Photochemical Society Meeting July 11, 2023
<i>Impact of Energy Transfer Pairs on the "Pop" and Fading of Daylight Fluorescent Pigments</i>", invited presentation. 3. Inter-American Photochemistry Society Winter Conference Jan. 6, 2023
<i>Blinded by the Light: Investigations of the Photochemistry of Daylight Fluorescent Pigments</i>, invited presentation. 4. Gordon Research Conference on Cultural Heritage July 10-15, 2022
<i>"Enlightening" Sprouse: Lightfastness and Composition of Daylight Fluorescent Pigments</i>, poster. 5. 51st Annual NSEE Conference (National Society for Experiential Education) Sept. 2022
<i>Aligning Academic Initiatives with Professional Best Practice</i> , Roundtable discussion and
<i>"Recasting Experiential Programs to Embrace Equity: A Case Study</i>,
PechaKucha Presentation, Co-presentations with Cathy L. McConnell. 6. 50th Annual NSEE Conference Oct. 2021
<i>Tools for change: Helping faculty incorporate course-based experiential learning</i>, Roundtable discussion. 7. Wooster Alumni Faculty Lecture Dec. 15, 2020
<i>Sabbatical at the Museum: Enlightening our Understanding of Daylight Fluorescent Materials</i>, Zoom presentation. 8. Inter-American Photochemistry Society Winter Conference Jan. 2-5, 2020
<i>Excited State Chemistry and Photostability of Anthraquinone-based Dyes</i>, poster. |
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9. Dyes in History and Archaeology 38 Nov. 7-8, 2019
Comparative Study of the Photostability and Degradation of Anthraquinone-based Dyes, poster.
10. Inter-American Photochemistry Society Winter Conference Jan. 2-5, 2019
Photochemical Properties and UV-Induced Degradation of Anthranilic Acid Derivatives, poster.
11. Wooster Science Cafe May 3, 2018
Fleeting Colors: Chemistry of Dyes and Pigments, invited presentation.
12. Gordon Research Conference on Cultural Heritage July 22-27, 2018
Photodegradation of Cochineal: Separation, Analysis and Characterization of Photoproducts, poster.
13. Inter-American Photochemistry Society Winter Conference Jan. 2-5, 2018
Analysis of Photodegradation of and Stabilization Methods for Organic Red Food Dyes, poster.
14. Bowling Green State University, Center for Photochemical Sciences Oct. 11, 2017
Explorations in Aminobenzoic Acid Derivative Photochemistry, invited seminar.
15. Gordon Research Conference on Photochemistry July 23-28, 2017
Impact of structure on photo-induced charge transfer in ortho-, para-, and meta- aminobenzoic acids, poster.
16. American Chemical Society National Meeting April 6, 2017
Structure and photophysical property relationships of aminobenzoic acids, oral presentation.
17. Inter-American Photochemistry Society Winter Conference Jan. 2-5 2017
Impact of Substituent Positioning on the Photochemistry of Aminobenzoic Acids, poster.
18. Gordon Research Conference on Cultural Heritage July 31-Aug. 5, 2016
Impact of Ambient Environment and Medium on the Photodegradation of Cochineal, poster.
19. IUPAC 2015, Busan, South Korea. Aug. 11, 2015
Environmental Impact on the Photodegradation of Cochineal, poster presentation.
20. IUPAC 2015, Busan, South Korea. Aug. 10, 2015
Solvent-dependence of the Photochemistry of para-Aminobenzoic Acids, poster presentation.
21. Inter-American Photochemistry Society Winter Conference Jan. 1-4, 2015
Photodegradation of Cochineal in Solution and Paints, poster.
22. Inter-American Photochemistry Society Winter Conference Jan. 2-5, 2014
Comparative Photochemistry of PABA and DABA, poster.
23. Allegheny College, Department of Chemistry Sept. 5, 2013
Beyond Sunscreen: Explorations of the Photochemistry of PABA Derivatives, invited seminar.
24. IUPAC 2013, Istanbul, Turkey. Aug. 13, 2013
Photochemistry of 1-Acylaminoanthraquinones, oral presentation.

25. IUPAC 2013, Istanbul, Turkey. Aug. 13, 2013
Impact of Esterification and Thionation on the Photochemistry of Para-Aminobenzoic Acid, oral presentation.
26. Gordon Research Conference on Photochemistry July 14-19, 2013
Photochemistry of para-Aminobenzoic Acid Derivatives, poster.
27. Inter-American Photochemistry Society Winter Conference Jan. 2-5, 2013
Photochemistry of para-Aminobenzoic Acid Derivatives as a Function of Electron-Accepting Moiety and Solvent Environment, poster.
28. IUPAC Symposium on Photochemistry, Coimbra, Portugal. July 15-20, 2012
Impact of the Electron Acceptor Moiety on the Photochemistry of para-Aminobenzoic acid Derivatives, poster.
29. American Chemical Society National Meeting March 27, 2012
Solvent and Substituent Effects on the Photochemistry of 1-Acylamino-anthraquinones, oral presentation.
30. Gordon Research Conference on Photochemistry July 10-15, 2011
Solvent and Substituent Effects on the Photochemistry of 1-Acylamino-anthraquinones, poster.
31. Denison University, Department of Chemistry March 3, 2011
pH-Dependent Photochemistry of para-Aminobenzoic Acid Derivatives, invited seminar.
32. Wright State University, Department of Chemistry April 16, 2010
pH- and Solvent Dependent Spectral Properties of para-Aminobenzoic Acids, invited seminar.
33. Science Round Table College of Wooster March 26, 2010
Sweating the Small Things: UV-Absorber Photochemistry.
34. American Chemical Society National Meeting March 21, 2010
pH- and Solvent Dependent Spectral Properties of para-Aminobenzoic Acids, oral presentation.
35. Inter-American Photochemistry Society Winter Conference Jan. 4, 2010
Environmental Impact on the Spectral Properties of para-Aminobenzoic Derivatives, invited oral presentation.
36. Gordon Research Conference on Photochemistry July 5-10, 2009
Solvent and Structural Effects on Charge Transfer in para-Aminobenzoic Acid Derivatives, poster.
37. Central Regional American Chemical Society Meeting May 21, 2009
Solvent and Structural Effects on Charge Transfer in Para-Aminobenzoic Acid Derivatives, oral presentation.
38. University of South Carolina, Department of Chemistry March 16, 2009
Solvent and Structural Effects on Charge Transfer in para-Aminobenzoic Acid Derivatives, invited seminar.
39. John Carroll University, Department of Chemistry March 11, 2009
Impact of Solvent-Solute Interactions upon the Photophysical Properties of Sunscreen Active Ingredients, invited seminar.

40. The Ohio State University, Department of Chemistry March 9, 2009
Solvent and Structural Effects on Charge Transfer in para-Aminobenzoic Acid Derivatives, invited seminar.
41. Inter-American Photochemistry Society Winter Conference Jan. 2-5, 2009
Impact of Solvent on Charge Transfer in para-Aminobenzoic Acid Derivatives, poster.
42. Case Western Reserve University, Department of Chemistry Oct. 30, 2008
Impact of Solvent-Solute Interactions upon the Photophysical Properties of Sunscreen Active Ingredients, invited seminar.
43. Central Regional American Chemical Society Meeting June 11, 2008
Impact of Solvent-Solute Interactions upon the Photophysical Properties of Sunscreen Active Ingredients, invited oral presentation.
44. American Chemical Society National Meeting April 6, 2008
Experimental and theoretical evaluation of the photophysical properties of benzophenone derivatives, oral presentation.
45. University of Akron, Department of Chemistry February 20, 2008
Solvent impact on the photophysical properties of benzophenone derivatives, invited seminar.
46. Marquette University, Department of Chemistry Feb. 1, 2008
Solvent impact on the photophysical properties of benzophenone derivatives, invited seminar.
47. Inter-American Photochemistry Society Winter Conference Jan. 3-6, 2008
Solvent impact on the photophysical properties of benzophenone derivatives, poster.
48. Science Round Table College of Wooster Sept. 28, 2007
Sunscreen: It's all about chemistry.
49. Kimberly Clark Corporation, Neenah, WI. Aug. 10, 2007
Solvent impact on the photophysical properties of benzophenone derivatives, invited talk.
50. Gordon Research Conference on Photochemistry July 8-13, 2007
Spectral and structural properties of a class of UV-absorbers, poster.
51. Physics Department College of Wooster June 8, 2007
Lasers and RaPTORS and protons! OH, MY!!!!.
52. American Chemical Society National Meeting March 24-29, 2007
Experimental and computational investigations of the photophysical properties of UV-absorbers in sunscreens, poster.
53. The College of Wooster Sept. 26, 2006
Chemistry in a crowd: Spectroscopic and theoretical investigations of condensed phase systems, departmental seminar.
54. St. Cloud State Department of Chemistry Oct. 18, 2004
Solvent dynamics accompanying ultrafast proton transfer in 1-acylamino-anthraquinones, departmental seminar.

55. International Conference on Coherent Multidimensional Vibrational Spectroscopy. Aug.15-17, 2004
Probing the solvent dynamics during ultrafast excited state proton transfer in 1-acylaminoanthraquinones, poster.
56. American Chemical Society National Meeting March 28-April 1, 2004
Direct observation of the ultrafast solvent response in condensed phase chemical dynamics, poster.
57. American Chemical Society National Meeting March 23-27, 2003
Dynamics of ultrafast proton transfer in 1-acylaminoanthraquinones, poster.
58. Waldo Semon Poster Session / Symposium, University of Akron Fall 1999
Gelation of a "sticky" rodlike polymer, poster.

Awards and Honors

- NetVUE Program Development Grant, Co-Director 2023-2025
Campus-wide Career Development and Vocational Discernment Initiatives
- NSF-MRI Grant, Co-PI (Award 1626088) MRI: Acquisition of an NMR Spectrometer to Sustain Excellence in Undergraduate Research 2016-2019
- American Chemical Society Petroleum Research Fund (ACS PRF) Undergraduate Research Grant (ACS PRF 53159-UR4) 2013-2016
- IUPAC Young Observer 2015 2015
- Mexican Council of Research and Technology Graduate Student International Travel Support, Co-Sponsor 2011
- NSF-CRIF Grant (Co-PI): U of MN CyberMULE (Award 1048560) 2010
- Gordon Research Conference Travel Grant 2007
- National Science Foundation Graduate Research Fellow 2002 - 2005
- American Chemical Society National Meeting Physical Chemistry Student Poster Award 2003
- American Chemical Society Women Chemists Committee Travel Award 2003

Professional Membership and Service

- American Chemical Society (ACS) 1998 - Present
- Wooster Local Section of the ACS Secretary 2007-2013
- Wooster Local Section of the ACS Chair 2014-2017
- Inter-American Photochemical Society (I-APS) 2008-Present
- American Chemical Society National Meeting Session Presider for Organic Photochemistry. Spring 2010, 2011
- Gordon Research Conference on Photochemistry Discussion Leader 2009, 2013
- Central Region American Chemical Society Meeting (CERMACS) May 2009
Co-chair Physical Chemistry Sessions.

- Expanding Your Horizons organizing committee and workshop 2008–Present
presenter for adolescent girls promoting science & math careers (annually April)
- B-WISER (Buckeye Women in Science, Engineering, and Research Institute) workshop presenter for adolescent girls' science camp (annually Summer) 2007–Present
- Wayne County LEPC (Local Emergency Planning Committee) member 2015–Present
- Wooster Science Cafe Planning Committee) member 2018–Present

Institutional Involvement	<p>College of Wooster 2006 – Present</p> <p>Departmental Service: Admissions Liaison, Assessment Coordinator, Senior IS Seminar Coordinator, Curriculum development, Search Committee Diversity Advocate, Search Committee Chair.</p> <p>Institutional Appointed Committees: Copeland Fund (2007-8), Faculty Scholarship (2007-8), NSF Graduate Fellowships (2007-14), Fall Forum (2008-9), LIRTC (2008-9), Galpin Prize (2010), Goldwater Scholarship Faculty Representative (2010–present), Faculty Leaves Committee (2018-19)</p> <p>Institutional Elected Committees: Committee on Committees (2010-12, chair 2011-12), Financial Advisory Committee (2012-14), Teaching Staff and Tenure Committee (2015-18, chair 2016-18), Provost Search Committee (2018-19), Presidential Search Committee (2022), Presidential Inauguration Planning Committee (2023), Chair of the Faculty Meeting (2023–)</p> <p>Other Institutional Service: Experiential Learning Strategic Working Group (2020–present), Global Liberal Arts Alliance (GLAA) College Liaison (2015–present), Phi Beta Kappa Officer and Induction Organization Group (2009–2022), Global Engagement Curriculum Taskforce (2017-18), Science Round Table Coordinator (Fall 2007), State Science Day Coordinator (Spring 2008-13), Faculty Mentoring Team member</p>
Mentoring	<p>46 Senior Independent Study theses advised</p> <p>40 Undergraduate (non-theses) researchers supervised</p> <p>Hosted visiting graduate student from Universidad Autonoma de San Luis Potosi, Mexico</p>