

SPENCER P. PITRE, PHD

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107 Physical Sciences
Oklahoma State University
Stillwater, OK 74078

EDUCATION

- Ph.D.** University of Ottawa, Chemistry 09/2012 – 10/2017
Dissertation: Visible-Light Mediated Redox Processes:
Strategies and Applications in Organic Synthesis
Advisor: Prof. Juan C. Scaiano
- B.Sc.** University of Prince Edward Island, Chemistry 09/2008 – 05/2012
Graduated with Honours
Dissertation: Steady-State Fluorescence Investigation of the
Association Constants of High Purity Modified
Cyclodextrins with 2,6-ANS
Advisor: Prof. Brian D. Wagner

POSITIONS AND SCIENTIFIC APPOINTMENTS

- Oklahoma State University**, Stillwater OK, USA 08/2019 – Present
Assistant Professor of Chemistry
• Photochemistry, Catalysis, Organic Synthesis
- University of California**, Irvine CA, USA 09/2017 – 07/2019
NSERC Postdoctoral Fellow
• Advisor: Larry E. Overman
• Organic Synthesis, Photochemistry, Catalysis

HONORS AND AWARDS

- OSU FY24 CAS Fall Travel Award** 05/2023
- NSERC Postdoctoral Fellowship** 09/2017 – 08/2019
- NSERC Michael Smith Foreign Study Supplement** 01/2015 – 05/2015
- NSERC Doctoral Scholarship** 05/2014 – 04/2017
- Ontario Graduate Scholarship** Declined
- Excellence Scholarship, University of Ottawa** 05/2014 – 04/2017
- Admission Scholarship (PhD), University of Ottawa** 01/2014 – 04/2014
- Admission Scholarship (Masters), University of Ottawa** 09/2012 – 12/2013
- Reactive Intermediates Student Exchange (RISE) Scholarship** 05/2011 – 08/2011
- Frederick M. Davison Award, University of Prince Edward Island** 2008

RESEARCH PROPOSALS FUNDED

ACS Petroleum Research Fund – Doctoral New Investigator 2021

Title: Halogen-Bonding Photocatalysis; Hydroquinones as Photocatalysts for the Radical Functionalization of Petroleum Feedstock Chemicals

Grant Number: PRF# 65034-DNI1

Role: Sole Principal Investigator

Amount Awarded: \$110,000 Funding Period: 06/01/2022 – 08/31/2024.

OSU CAS Research Program FY21 Summer Salary Option 2020

Title: Expanding the radical chemistry toolkit; Accessing non-traditional epoxide reactivity with Vitamin B12 catalysis

Role: Sole Principal Investigator

Amount Awarded: \$8,556 Funding Period: 07/2020

PUBLICATIONS

Preprints

Gallage, P. G.; McKee, M. G.; Pitre, S. P.* 1,4-Dihydropyridine Anions as Potent Single-Electron Photoreductants. *ChemRxiv* **2023**, DOI: 10.26434/chemrxiv-2023-z94lv.

Journal Publications at OSU

(23) Teye-Kau, J. H. G.; Ayodele, M. J.; Pitre, S. P.* [Vitamin B₁₂-Photocatalyzed Cyclopropanation of Michael Acceptors Using Dichloromethane as the Methylene Source](#). *Angew. Chem. Int. Ed.* **2024**, *63*, e202316064. [Featured in [OSU News](#)]

(22) Gallage, P. C.; Pitre, S. P.* [Direct photolysis of 4-tert-alkyl-1,4-dihydropyridines under blue-light irradiation for the generation of tertiary alkyl radicals](#). *Green Chem.* **2022**, *24*, 6845.

(21) Tasnim, T.; Ayodele, M. J.; Pitre, S. P.* [Recent Advances in Employing Catalytic Donors and Acceptors in Electron Donor-Acceptor Complex Photochemistry](#). *J. Org. Chem.* **2022**, *87*, 10555. [Invited Synopsis Article]

(20) Pitre, S. P.* [Radical coupling decreases synthetic burden](#). *Science* **2022**, *375*, 1234. [Invited Perspective Article]

(19) Tasnim, T.; Ryan, C.; Christensen, M. L.; Fennell, C. J.; Pitre, S. P.* [Radical Perfluoroalkylation Enabled by a Catalytically Generated Halogen Bonding Complex](#). *Org. Lett.* **2022**, *24*, 446.

(18) Pitre, S. P.*; Overman, L. E.* [Strategic Use of Visible-Light Photoredox Catalysis in Natural Product Synthesis](#). *Chem. Rev.* **2022**, *122*, 1717. [Invited Review Article]

Journal Publications Prior to OSU

- (17) Pitre, S. P.; Allred, T. K.; Overman, L. E.* [Lewis Acid Activation of Fragment-Coupling Reactions of Tertiary Carbon Radicals Promoted by Visible Light Irradiation of EDA Complexes](#). *Org. Lett.* **2021**, *23*, 1103.
- (16) Pitre, S. P.; Muuronen, M.; Fishman, D. A.; Overman, L. E.* [Tertiary Alcohols as Radical Precursors for the Introduction of Tertiary Substituents into Heteroarenes](#). *ACS Catal.* **2019**, *9*, 3413.
- (15) Pitre, S. P.; Weires, N. A.; Overman, L. E.* [Forging C\(sp³\)-C\(sp³\) Bonds with Carbon-Centered Radicals in the Synthesis of Complex Molecules](#). *J. Am. Chem. Soc.* **2019**, *141*, 2800.
- (14) McCallum, T.; Pitre, S. P.; Morin, M.; Scaiano, J. C.*; Barriault, L.* [The photochemical alkylation and reduction of heteroarenes](#). *Chem. Sci.* **2017**, *8*, 7412.
- (13) Pitre, S. P.; Scaiano, J. C.*; Yoon, T. P.* [Photocatalytic Indole Diels–Alder Cycloadditions Mediated by Heterogeneous Platinum-Modified Titanium Dioxide](#). *ACS Catal.* **2017**, *7*, 6440.
- (12) Pitre, S. P.; Yoon, T. P.*; Scaiano, J. C.* [Titanium Dioxide Visible Light Photocatalysis: Surface Association Enables Photocatalysis with Visible Light Irradiation](#). *Chem. Commun.* **2017**, *53*, 4335.
- (11) Garcia, A. M., de Alwis Weerasekera, H.; Pitre, S. P.; McNeill, B.; Lissi, E.; Edwards, A. M.*; Alarcon, E. M.* [Photodynamic performance of zinc phthalocyanine in HeLa cells: A comparison between DPCC liposomes and BSA as delivery systems](#). *J. Photochem. Photobiol., B.* **2016**, *163*, 385.
- (10) Pitre, S. P.; McTiernan, C. D.; Scaiano, J. C.* [Library of Cationic Organic Dyes for Visible-Light-Driven Photoredox Transformations](#). *ACS Omega.* **2016**, *1*, 66.
- (9) Pitre, S. P.; McTiernan, C. D.; Scaiano, J. C.* [Understanding the Kinetics and Spectroscopy of Photoredox Catalysis and Transition-Metal Free Alternatives](#). *Acc. Chem. Res.* **2016**, *49*, 1320.
- (8) Pitre, S. P.; McTiernan, C. D.; Vine, W.; DiPucchio, R.; Grenier, M.; Scaiano, J. C.* [Visible-Light Actinometry and Intermittent Illumination as Convenient Tools to Study Ru\(bpy\)₃Cl₂ Mediated Photoredox Transformations](#). *Sci. Rep.* **2015**, *5*, 16397.
- (7) Favrelle, A.; Gouhier, G.*; Guillen, F.; Martin, C.; Mofaddel, N.; Petit, S.; Mundy, K. M.; Pitre, S. P.; Wagner, B. D.* [Structure-Binding Effects: Comparative Binding of 2-Anilino-6-naphthalenesulfonate by a Series of Alkyl- and Hydroxyalkyl-Substituted \$\beta\$ -Cyclodextrins](#). *J. Phys. Chem. B.* **2015**, *119*, 12921.

- (6) McTiernan, C. D.; Pitre, S. P.; Scaiano, J. C.* [Photocatalytic Dehalogenation of Vicinal Dibromo Compounds Utilizing Sexithiophene and Visible-Light Irradiation.](#) *ACS Catal.* **2014**, *4*, 4034.
- (5) McTiernan, C. D.; Pitre, S. P.; Ismaili, H.; Scaiano, J. C.* [Heterogeneous Light-Mediated Reductive Dehalogenations and Cyclizations Utilizing Platinum Nanoparticles on Titania \(PtNP@TiO₂\).](#) *Adv. Synth. Catal.* **2014**, *356*, 2819.
- (4) Pitre, S. P., McTiernan, C. D., Ismaili, H., Scaiano, J. C.* [Metal-Free Photocatalytic Radical Trifluoromethylation Utilizing Methylene Blue and Visible Light Irradiation.](#) *ACS Catal.* **2014**, *4*, 2530.
- (3) Pitre, S. P., McTiernan, C. D., Ismaili, H., Scaiano, J. C.* [Mechanistic Insights and Kinetic Analysis for the Oxidative Hydroxylation of Arylboronic Acids by Visible Light Photoredox Catalysis: A Metal-Free Alternative.](#) *J. Am. Chem. Soc.* **2013**, *135*, 13286.
- (2) Carter Ramirez, D. M., Pitre, S. P., Kim, Y. A., Bittman, R., Johnston, L. J.* [Photouncaging of Ceramides Promotes Reorganization of Liquid-Ordered Domains in Supported Lipid Bilayers.](#) *Langmuir* **2013**, *29*, 3380.
- (1) Ismaili, H., Pitre, S. P., Scaiano, J. C.* [Active participation of amine derived radicals in photoredox catalysis as exemplified by a reductive cyclization.](#) *Catal. Sci. Technol.* **2013**, *3*, 935.

Non-Refereed Contributions

Pitre, S. P.; McTiernan, C. D.; Scaiano, J. C. Techniques for Characterizing Chain Propagation in Photoredox Catalysis. *European Photochemistry Association Newsletter*. **2016**, *90*, 183.

ORAL PRESENTATIONS AND INVITED LECTURES

2022 ACS Southwest Regional Meeting. (November 6–9, 2022) Pitre, S. P. “Photochemical Strategies for the Generation of Carbon-Centered Radicals from Alkyl and Aryl Halides”, Baton Rouge, Louisiana, USA. [**Invited Speaker, Cope Scholar – Catalysis in Organic Synthesis Symposium**]

2022 ACS Midwest Regional Meeting. (October 19–21, 2022) Pitre, S. P. “Photochemical Strategies for the Generation of Alkyl and Aryl Radicals from Carbon–Chlorine Bonds”, Iowa City, Iowa, USA. [**Invited Speaker, Chemoselective Functionalization of Strong Bonds Symposium**]

2022 ACS Spring National Meeting. (March 20–24, 2022) Pitre, S. P. “Catalytically Generated Electron Donor-Acceptor Complexes in Visible-Light-Mediated Free-Radical Reactions”, San Diego, California, USA.

2022 Florida Heterocyclic and Synthetic Conference. (March 6–9, 2022) Pitre, S. P. “Catalytically-Generated Charge-Transfer Complexes in Visible-Light-Mediated Free Radical Reactions”, Gainesville, Florida, USA.

2021 ACS Southwest Regional Meeting. (October 31–November 3, 2021) Pitre, S. P. “Charge-Transfer Complexes as Catalytic Intermediates in Photoredox Transformations”, Austin, Texas, USA. [Invited Speaker, Advances in Transition Metal Catalysis for Organic Synthesis Symposium]

Oral Presentations Prior to OSU

101st Canadian Chemistry Conference and Exhibition. (2018) Pitre, S. P.; Overman, L. E. “Alcohols as Radical Precursors for the Alkylation of Heterocycles”, Edmonton, Alberta, Canada.

99th Canadian Chemistry Conference and Exhibition. (2016) Pitre, S. P.; Scaiano, J. C.; Yoon, T. P. “One-Pot Three Component Coupling of Indoles Mediated by Heterogeneous Semiconductor Photocatalysis”, Halifax, Nova Scotia, Canada.

99th Canadian Chemistry Conference and Exhibition. (2016) Pitre, S. P.; McTiernan, C. D.; Vine, W.; DiPucchio, R.; Grenier, M.; Scaiano, J. C. “Development of a Visible-Light Actinometric Technique for the Facile Characterization of Chain Propagation in Ru(bpy)₃Cl₂ Mediated Photoredox Transformations”, Halifax, Nova Scotia, Canada.

Centre for Catalysis Research and Innovation Technical Seminar. (2015) Pitre, S. P. “Visible-Light Mediated Redox Processes: Strategies and Applications in Organic Synthesis”, Ottawa, Ontario, Canada.

42nd Quebec-Ontario Physical Organic Minisymposium. (2014) Pitre, S. P., McTiernan, C. D., Ismaili, H., Scaiano, J. C. “Methylene Blue Photocatalysis: A Metal-Free Alternative to Radical Trifluoromethylation”, Hamilton, Ontario, Canada.

16th Annual Reactive Intermediates Student Exchange (RISE) Conference. (2011) Pitre, S. P.; Johnston, L. J. “Direct Incorporation of Short- and Long-Chain Ceramides into Supported Lipid Bilayers”, Regina, Saskatchewan, Canada.

POSTER PRESENTATIONS

2023 Organic Reactions and Processes Gordon Research Conference (July 16–21, 2022) “Halogen-Bonding Photocatalysis, Cobalt Photocatalysis, and Excited Organic Anions: Three Distinct Photochemical Approaches to Organic Synthesis”, Bryant University, Rhode Island, USA.

2022 Organic Reactions and Processes Gordon Research Conference (July 17–22, 2022) “Free-Radical Reactions Mediated by Nucleophilic Cobalt Catalysis and Visible-Light Irradiation”, Bryant University, Rhode Island, USA.

Poster Presentations Prior to OSU

2018 University of California Chemical Symposium. (2018) Pitre, S. P.; Overman, L. E. “Tertiary Alcohols as Radical Precursors for the Alkylation of Heterocycles”, Lake Arrowhead, California, USA.

Centre for Advanced Materials Research Opening. (2017) Pitre, S. P.; Scaiano, J. C.; Yoon, T. P. “Photocatalytic Diels–Alder Reactions Mediated by TiO₂ and Visible Light Irradiation”, Ottawa, Ontario, Canada.

98th Canadian Chemistry Conference and Exhibition. (2015) Pitre, S. P.; Scaiano, J. C.; Yoon, T. P. “Developing Heterogeneous Alternatives for Visible- Light Photoredox Catalysis”, Ottawa, Ontario, Canada.

22nd IUPAC International Conference on Physical Organic Chemistry. (2014) Pitre, S. P., McTiernan, C. D., Ismaili, H., Scaiano, J. C. Metal-Free Photocatalytic Radical Trifluoromethylations using Methylene Blue. Ottawa, Ontario, Canada.

19th International Symposium on Homogeneous Catalysis. (2014) Pitre, S. P., McTiernan, C. D., Ismaili, H., Scaiano, J. C. “Visible-Light Promoted Radical Trifluoromethylations Using Methylene Blue as an Organophotocatalyst”, Ottawa, Ontario, Canada.

6th Pacific Symposium on Radical Chemistry. (2013) Pitre, S.P., McTiernan, C. D., Ismaili, H., Scaiano, J. C. “Aerobic, Metal Free Photoredox Catalysis Using Methylene Blue”, Vancouver, British Columbia, Canada.

STUDENT AND POSTDOCTORAL FELLOW MENTORING

Doctoral Students Advised

- Prasadi Gallage, 01/2020 – Present
- Tarannum Tasnim, 01/2020 – Present
- John Teye-Kau, 01/2022 – Present
- Negin Shafiei, 05/2022 – Present
- Subrata Pal, 01/2023 – Present
- Viraj Kodithuwakku, 01/2024 – Present

Undergraduate Students Advised

- Marely Gilestra, 11/2019 – 12/2020
- Kayla Beagles, 06/2020 – 04/2021
- Calvin Ryan, 06/2020 – 12/2021
- Mary McKee, 09/2021 – 05/2023
- Kaitlin Ashcraft, 09/2021 – Present

- Bailey Robertson, 01/2022 – 05/2023
 - Completed Honors thesis 05/2023
- Zane Calvert, 05/2021 – 08/2021, 08/2022 – 10/2023
- Megan Padgett, 01/2023 – 05/2023
- Katelyn Laminack, 05/2023 – Present
- Jentry Lemons, 06/2023 – Present

Postdoctoral Fellows Advised

- Mayokun Ayodele, 01/2022 – 04/2023
 - Currently employed at Weaver Labs, Stillwater OK.

THESIS COMMITTEES

Doctoral Students

- | | | |
|------------------|---------------------|--------------------|
| • Waleed Alamier | • Khalid Alrashidi | • Scott Hutchinson |
| • Tim Schoch | • Tiwalola Ogunleye | • Kwabena Fobi |
| • Shivangi | • Habeeb Al-Mashala | • Vanessa Fortney |
| • Nima Noei | • Osaid Alkhamayseh | • Parul Sharma |
| • Mohi Naderi | | |

Master's Students

- | | |
|--------------|------------------|
| • Erik Lantz | • Nathan Herndon |
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Undergraduate Honors Students

- Megan Hays

TEACHING EXPERIENCE

Oklahoma State University, Stillwater OK, USA
Assistant Professor, Department of Chemistry

08/2019 – Present

Spring 2023: CHEM 3053 – Organic Chemistry I

- Course credit hours: 3.0
- Enrollment: 143
- Student evaluations
 - Overall average: 4.45 out of 5

Spring 2023: CHEM 3013 – Survey of Organic Chemistry

- Course credit hours: 3.0
- Enrollment: 77
- Student evaluations
 - Overall average: 4.20 out of 5

Fall 2022: CHEM 4322 – Advanced Organic Chemistry Laboratory

- Course credit hours: 2.0
- Enrollment: 4
- Student evaluations:
 - Overall average: 4.80 out of 5

Spring 2022: CHEM 3053 – Organic Chemistry I

- Course credit hours: 3.0
- Enrollment: 194
- Student evaluations:
 - Overall average: 4.09 out of 5

Spring 2021: CHEM 6420 - Introduction to Photochemistry

- Course credit hours: 3.0
- Enrollment: 13
- Student evaluations:
 - Overall average: 4.7 out of 5

Fall 2020: CHEM 4322 – Advanced Organic Chemistry Laboratory

- Course credit hours: 2.0
- Enrollment: 4 students
- Student evaluations:
 - Overall average: 4.25 out of 5.0

Fall 2020: CHEM 5011 – Graduate Seminar

- Co-instructor with Allen Ablett
- Course credit hours: 1.0
- Enrollment: 5 students

Spring 2020: CHEM 5063 – Foundations of Organic Chemistry

- Course credit hours: 3.0
- Enrollment: 10 students
- Student evaluations:
 - Overall instructor average: 4.17 out of 5.0
 - Overall view of the course: 3.38 out of 4.0

Fall 2019: CHEM 2980 – The Chemistry of Life

- Course credit hours: 1.0
- Enrollment: 5 students

University of Ottawa, Ottawa ON, Canada

2012 – 2016

Lab Demonstrator, Department of Chemistry and Biomolecular Sciences

- General Chemistry Laboratory, 2012
- Organic Chemistry I Laboratory, 2013, 2014
- Organic Chemistry II Laboratory, 2013 – 2016

University of Prince Edward Island, Charlottetown PE, Canada
Teaching Assistant, Department of Chemistry

2011 – 2012

- Physical Chemistry I and II Laboratories

GRADUATE AND UNDERGRADUATE RESEARCH TRAINING

University of Ottawa, Ottawa ON, Canada

06/2012 – 07/2017

PhD Candidate, Advisor: Juan C. Scaiano

- Photochemistry, Catalysis, Physical Organic Chemistry

University of Wisconsin-Madison, Madison WI, USA

01/2015 – 04/2015

Visiting Research Assistant, Advisor: Tehshik P. Yoon

- Organic Synthesis, Photochemistry, Catalysis

University of Prince Edward Island, Charlottetown PE, Canada

09/2011 – 05/2012

Honours Student Research Assistant, Advisor: Brian D. Wagner

- Physical Chemistry, Supramolecular Chemistry

National Research Council Canada, Ottawa ON, Canada

05/2011 – 08/2011

Student Research Assistant (RISE), Advisor: Linda J. Johnston

- Biophysical Chemistry

University of Prince Edward Island, Charlottetown PE, Canada

02/2011 – 04/2011

Part-Time Student Research Assistant, Advisor: Brian D. Wagner

- Physical Chemistry, Supramolecular Chemistry

PROFESSIONAL TRAINING

NSF 2020 MPS Workshop for New Investigators

Online Workshop, 11/09/2022 – 11/10/2022

Description: Developed a short proposal on addressing the mysteries of the planet Venus, served on a mock review panel to evaluate proposals from other workshop participants and connected and interacted with numerous Program Directors from NSF throughout the workshop.

Hanover Research Grant Writing Workshop

Oklahoma State University, 11/05/2019

Description: Attended sessions on identifying funding opportunities and matching grant ideas with suitable funders, grant seeking strategy and developing competitive proposals, resubmissions, and developing interdisciplinary team-based proposals.

Grant Writer's Seminars and Workshops: Write Winning Grant Proposals

Oklahoma State University, September 18, 2019

Description: Attended sessions on how to write successful grant proposals to any agency.

PROFESSIONAL AFFILIATIONS

American Chemical Society, 2019 – Present
Member

PROFESSIONAL SERVICE

Peer-Reviewed Articles for:

- ACS Catalysis
- ChemCatChem
- Chemical Science
- ChemPhotoChem
- Journal of Organic Chemistry
- Nature Catalysis
- Organic Letters
- Science
- Angewandte Chemie International Edition
- Chemical Communications
- Chemistry – A European Journal
- ChemSusChem
- Journal of the American Chemical Society
- Nature Communications
- Reaction Chemistry & Engineering

Peer-Reviewed Grant Proposals for:

- ACS Petroleum Research Fund

Guest Editor, ChemCatChem & European Journal of Organic Chemistry:

- Joint Special Collection: Radical Chemistry in Catalysis and Organic Synthesis
- 09/2022 – Present
- Responsible for developing a list of researchers to invite to submit to special collection, for helping write the invitation letter, and for advertising the special collection at conferences

Session Organizer, Advances in Catalysis for Organic Synthesis Symposium, 2023 ACS Southwest Regional Meeting

- November 17, Oklahoma City, Oklahoma
- Co-organized with Daniel Romo (Baylor University)

Poster Judge for:

- 2022 Florida Heterocyclic and Synthetic Conference (March 6–9, 2022)

DEPARTMENTAL SERVICE

Committees:

- Hiring Committee, Organic Tenure-Track Associate/Assistant Professor (Fall 2023)
- Graduate Admissions Committee (01/2023 – Present)
- Hiring Committee, Organic Teaching Assistant Professor (Fall 2022)
- Hiring Committee, Organic Teaching Assistant Professor (Fall 2021)
- Hiring Committee, Organic Tenure-Track Assistant Professor (Fall 2021)
- Hiring Committee, Organic Teaching Assistant Professor (Spring 2020)

Poster Judge for:

- 2023 OSU Undergraduate Research Symposium (April 18, 2023)
- 2022 OSU Undergraduate Research Symposium (April 19, 2022)

Recruiting:

- Graduate Recruitment Booth
 - 2022 ACS Southwest Regional Meeting, Baton Rouge, Louisiana
 - 2021 ACS Southwest Regional Meeting, Austin, Texas
- Undergraduate Recruitment Events
 - OSU Up Close (10/17/2022, 10/11/2023)
 - OSU Majors and Minors Fair (09/26/2019, 10/13/2022)
 - OSU Junior Day (04/22/2023)

UNIVERSITY SERVICE

Committees:

- OSU Pre-Health Advisory Committee (01/2023 – Present)