Colleen N. Scott

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I. PROFESSIONAL AFFILIATION AND CONTACT INFORMATION

Mississippi State University
Department of Chemistry
Hand Lab, 3325
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Mississippi State, MS 39762
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II. EDUCATION

Ph.D. Organic Chemistry, 2005
University of Pittsburgh, Pittsburgh, PA

B.S. Chemistry, 1998
Auburn University, Auburn, AL
Graduated *cum laude*.

III. PROFESSIONAL EXPERIENCE

2015 – Present Assistant Professor
Department of Chemistry
Mississippi State University

2010 – 2015: Assistant Professor
Department of Chemistry and Biochemistry
Southern Illinois University Carbondale

2006-2010: Post-Doctoral Associate (Teaching/Research)
Department of Chemistry and Biochemistry
Southern Illinois University

Research Experience Summary

Post-Doctoral Associate 2006 – 2010
Southern Illinois University Carbondale Carbondale, IL

- Designed and synthesized organosilicon materials as scaffold for nerve cell growth and differentiation.
- Assisted in the advisement of graduate and undergraduate students on their research projects.
- Assisted in the daily operation of the research laboratory.
- Taught General, Organic and GOB chemistry (75% Appointment)

Graduate Student Researcher 1998–2005
University of Pittsburgh Pittsburgh, PA

- Designed and synthesized a new cyclophane for the use as an artificial receptor in the inhibition of tyrosine phosphatases.

- Designed and synthesized thiolate naphthoquinones and evaluated their inhibitory activity against the dual specificity phosphatases CDC 25, an important family of enzymes for the cell cycle process.
- Developed a new catalytic method for the synthesis of unsymmetrical bis-alkoxysilanes for the use in intramolecular reactions.

Undergraduate Student Researcher 1994-1998

Auburn University Auburn, AL

- Synthesized nucleotides analogs for alternating cyclocopolymerization and binding with deoxyribonucleic acid.

IV. RESEARCH AND CREATIVE ACTIVITY

My research interest is in the design, synthesis and characterization of organic materials for biological applications and functions.

The main project areas that are currently being investigated in the group include.

i. Development of redox stable conducting polymers for application as biosensors.
ii. Synthesis and characterization of silicon containing conducting polymers using C-H functionalization reaction as materials for organic electronic devices.
iii. Development of a new series of diketopyrrolopyrrole (DPP) compounds for application as stable n-type materials for organic electronic devices.
iv. Development of Near Infrared I and II (NIR I and NIR II) emissive dyes for biological sensing and imaging using C-H activation.
v. Development of alternative thermoplastics from renewable feedstock; high thermally resistant materials that are melt processable; and thermally stable degradable commodity materials.

V. PUBLICATIONS AND CREATIVE WORKS

Relevant Publications and Patents

1. Ishanka Rajapaksha, Hao Chang, Yao Xiong, Seth Marder, Steven R. Gwaltney, and Colleen N. Scott,* "New Design Strategy Toward NIR I Xanthene-Based Dyes". *J. Org. Chem.* **2020**, 85, 19, 12108–12116
2. Eric Munyaneza, Bruno Donnadieu and Colleen N Scott* "Synthesis and characterization of thermally stable bio-based poly(ester amide)s from sustainable feedstock", *Eur Polym J*., **2019,** 120, 109228
3. Chathuranga S. L. Rathnamalala, Jacqueline N. Gayton, Austin L. Dorris, William Meador, Nathan
4. Hammer,* Jared H. Delcamp,* and Colleen N. Scott.* "Donor-Acceptor-Donor NIR II Emissive Rhodindolizine Dye Synthesized by C-H Bond Functionalization", *J. Org. Chem.* **2019,** 84, 20, 13186-13193
5. Daijun Feng, George Barton and Colleen Scott* "Synthesis of 2,5-dibutyl-3,6-dimethyl-1H,2H,4H,5H-pyrrolo[3,4-c]pyrrole-1,4-dione: A diketopyrrolopyrrole scaffold for the formation of alkenyl-diketopyrrolopyrrole compounds", Compounds. *Organic Letters* **2019,** *21* (7), 1973-1978.
6. Colleen Nicola Scott* and Milind Bisen, "Synthesis of reactively functionalized 2,5-siloles using Kumada type nickel-mediated intramolecular cyclization and their utilization in polymer synthesis", *Polymer* **2019,** *170*, 204-210.
7. Guery Saenz and Colleen N Scott "Sustainable Poly(ether amide)s from Lignin-Derived Precursors", Journal of Polymer Science, Part A: Polymer Chemistry, *Journal of Polymer Science, Part A: Polymer Chemistry,* **2018**, 56, 2154–2160.

8. Dr. Qinqin Shi, Wesley Tatum, Dr. Junxiang Zhang, Dr. Colleen Scott, Dr. Christine K. Luscombe, Dr. Seth R. Marder, Dr. Simon B. Blakey, "The Direct Arylation Polymerization (DArP) of Well-Defined Alternating Copolymers Based On 5,6Dicyano[2,1,3]benzothiadiazole (DCBT)", *Asian J. Org. Chem.* **2018**, *7*, 1419.
9. Colleen Scott,* Milind Bisen, Dominik Stemer Samuel McKinnon and Christine Luscombe "Direct arylation polycondensation of 2,5-dithienylsilole with a series of difluorobenzodiimine-based electron acceptors" *Macromolecules,* **2017***, 50, 4623–4628.*
10. Chuangjun Liu, Quinn A. Best, Brian Suarez, Jack Pertile, Matthew E. McCarroll, Colleen N. Scott*, "Cycloalkyl-AminoMethylRhodamines: pH Dependent Photophysical Properties Tuned by Cycloalkane Ring Size" *J Fluoresc* **2015***, 25,* 231–237.
11. Bojan Mitrovic, Stephanie Eastwood, Gary Kinsel and Colleen Scott* "Stimuli Response of Cationic Polymer Brush Prepared by ATRP: Application in Peptide Fractionation" *Polymer*, **2014**, *55*, 3551–3556.
12. Milind Bisen and Colleen Scott* "Synthesis and Optoelectronic Properties of a Low Band-Gap Co-Polymer Derived from Silole and Diketopyrrolopyrrole (DPP)" *Macromolecules* **2014**, *47*, 8196−8202.
13. Bojan Mitrovic, Stephanie Eastwood, VenNey Wong, Daniel Dyer, Gary Kinsel and Colleen Scott* "Peptide/Protein Separation with Cationic Polymer Brush Nanosponges for MALDI-MS Analysis", *Langmuir* **2013**, 29, 696−700.
14. Quinn Best, Narsimha Sattenapally, Daniel Bush, Daniel J. Dyer, Matthew McCarroll, and Colleen Scott. "pH-Dependent Si-Fluorescein Hypochlorous Acid Fluorescent Probe: Spirocycle Ring-Opening and Excess Hypochlorous Acid-Induced Chlorination", *J. Am. Chem. Soc.,* **2013**, *135* (36), 13365–13370.
15. Quinn A. Best, Chuangjun Liu, Paul D. van Hoveln, Matthew E. McCarroll, Colleen N. Scott*. "AnilinoMethylRhodamines: pH Sensitive Probe with Tunable Photophysical Properties by Substituent Effects", *J. Org. Chem., **2013**, 78, 10134−10143.*
16. Colleen N. Scott* and Craig S. Wilcox "A Mild Synthesis of Unsymmetrical Bis-Alkoxysilanes through Catalyzed Alcoholysis of Hydridosilanes Containing C-C Multiple Bonds and Aryl Halides." *J. Org. Chem.* **2010***, 75*, 253–256.
17. Scott, C. N.; Wilcox, C. S*. "A Mild Synthesis of Unsymmetrical Bis-Alkoxysilanes through Catalyzed Alcoholysis of Hydridosilanes." *Synthesis* **2004**, *16*, 2273.
18. Kar, S.; Lefterov, I. M.; Wang, M.; Lazo, J. S.; Scott, C. N.; Wilcox, C. S.; Carr, B. I. "Binding and Inhibition of Cdc25 Phosphatases by Vitamin K Analogs." *Biochemistry* **2003**, *42*, 10490-10497.

Patent

Quinn Best, Narsimha Sattenapally, Lichang Wang, Matthew McCarroll, Daniel Dyer, and Colleen Scott U.S. Patent 2015.
Entitled: SILAANTHRACENE AS A RED AND NEAR INFRARED SENSOR AND A METHOD TO MANUFACTURE SUCH A SENSOR

Invited Presentations (conferences and institutions)

1. Colleen Scott PhD (**2020**)
   Organic/Polymeric Materials – Design Strategy for New Optoelectronic Materials and Post-Functionalization of Waste Materials
   Louisiana State University (LSU)
   Contributors: Ranga Wahalathantrige Don, Mohammed Almtiri, and Dr. Daijun Feng
2. Colleen Scott PhD (**2020**)
   Organic/Polymeric Materials – Design Strategy for New Optoelectronic Materials and Post-Functionalization of Waste Materials
   Massachusetts Institute of Technology (MIT)
   Contributors: Ranga Wahalathantrige Don, Mohammed Almtiri, and Dr. Daijun Feng
3. Colleen Scott PhD (**2019**)
   Silole-Containing Polymers for Organic Semiconducting Materials, in honor of Seth Marder.

SEMACS 2019
Contributor: Milind Bisen and Samuel McKinnion

4. Colleen Scott, PhD (**2019**)
Design, Synthesis and Characterization of Conducting Plastics and Near Infrared II (NIR II) Emissive Dyes
University of Akron
Contributors: Chathuranga S. L. Rathnamalala, Daijun Feng, Ishanka Rajapaksha, Mohammed Almtiri, Jacqueline N. Gayton, Austin L. Dorris, William Meador, Nathan I. Hammer, and Jared H. Delcamp.

5. Colleen Scott, PhD (**2019**)
Design, Synthesis and Characterization of Conducting Plastics and Near Infrared II (NIR II) Emissive Dyes
Auburn University
Contributors: Chathuranga S. L. Rathnamalala, Daijun Feng, Ishanka Rajapaksha, Mohammed Almtiri, Jacqueline N. Gayton, Austin L. Dorris, William Meador, Nathan I. Hammer, and Jared H. Delcamp.

6. Colleen Scott, PhD (**2019**)
Design, Synthesis and Characterization of Conducting Plastics and Near Infrared II (NIR II) Emissive Dyes
University of South Alabama
Contributors: Chathuranga S. L. Rathnamalala, Daijun Feng, Ishanka Rajapaksha, Mohammed Almtiri, Jacqueline N. Gayton, Austin L. Dorris, William Meador, Nathan I. Hammer, and Jared H. Delcamp.

7. Colleen Scott, PhD (**2018**)
Sustainable Bio-based Polymers from Lignin-Derived Precursors
Frontiers in Biorefining: Chemicals and Products from Renewable Carbon
Contributors: Guery Saenz, Eric Munyaneza

8. Colleen Scott, PhD (**2018**)
Sustainable Bio-based Polymers from Lignin-Derived Precursors
University of Alabama, Huntsville
Contributors: Guery Saenz, Eric Munyaneza

9. Colleen Scott (**2017**)
"Direct Arylation Polymerization Synthesis of a Series of New Silole-Benzazole Copolymers"
Mississippi Academy of Science 81st Annual Meeting
Contributors: Milind Bisen and Samuel McKinnion

10. Colleen Scott (**2017**)
"Direct Arylation Polymerization Synthesis of a Series of New Silole-Benzazole Copolymers"
The Open University
Department of Chemistry
Milton Keynes, South East England
Contributors: Milind Bisen and Samuel McKinnion

11. Colleen Scott (**2017**)
"Direct Arylation Polymerization Synthesis of a Series of New Silole-Benzazole Copolymers"
University of Alabama
Department of Chemistry
Contributors: Milind Bisen and Samuel McKinnion

12. Colleen Scott (**2016**)
"Design and Synthesis of Silole-Containing Conducting Polymers"
University of Southern Mississippi
Department of Chemistry and Biochemistry
Contributors: Milind Bisen and Samuel McKinnion

13. Colleen Scott (**2016**)
"Tuning Fluorescent pH Probes for Biological Applications"
Millsaps College
Department of Chemistry and Biochemistry

Contributors: Q. Best, N. Sattenapally, D. Bush, D. J. Dyer, M. McCarroll, Krishanthi Weerasinghe, Lichang Wang and Chuangjun Liu

14. Colleen Scott (**2014**)
"Development of Fluorescent Chemosensors: tunable photophysical properties"
University of Texas El Paso,
Department of Chemistry
Contributors: Q. Best, N. Sattenapally, D. Bush, D. J. Dyer, M. McCarroll, Krishanthi Weerasinghe, Lichang Wang. Chuangjun Liu and Milind Bisen
15. Colleen Scott (**2014**)
"Development of Fluorescent Chemosensors: tunable photophysical properties"
Andrews University
Department of Chemistry and Biochemistry
Contributors: Q. Best, N. Sattenapally, D. Bush, D. J. Dyer, M. McCarroll, Krishanthi Weerasinghe, Lichang Wang. Chuangjun Liu and Milind Bisen
16. Colleen Scott (**2012**)
"The Development of Silicon Containing Fluorescent Biosensors"
University of Missouri – Saint Louis
Department of Chemistry and Biochemistry
Contributors: Q. Best, N. Sattenapally, D. Bush, D. J. Dyer, M. McCarroll
17. Colleen Scott (Keynote Speaker) (**2012**)
"The Development of Silicon Containing Fluorescent Biosensors"
Purdue University Department of Chemistry and Biochemistry
Purdue Chapter NOBCChE: 4th Annual Research Symposium
Contributors: Q. Best, N. Sattenapally, D. Bush, D. J. Dyer, M. McCarroll
18. Colleen Scott (**2012**)
"The Development of Silicon Containing Fluorescent Biosensors"
Saint Louis University
Department of Chemistry
Contributors: Q. Best, N. Sattenapally, D. Bush, D. J. Dyer, M. McCarroll, Krishanthi Weerasinghe, Lichang Wang

Contributed Presentations Conferences

1. Tsai, J. Y.*; Bouhadir, K. H.; Gillies-Scott, C. N.; Shevlin, P. B.
"Synthesis of Nucleic Acid Analogs by Alternating Cyclocopolymerization."Poster Presentation, 49th Southeast Regional Meeting of the American Chemical Society, Roanoke, VA, October 1997.
2. Colleen N. Scott*
"Progress towards the Synthesis of a RGD-Functionalized Conducting Polymer for the use as Nerve Guidance Channel." Poster Presentation Argonne National Laboratory 2nd Annual Postdoctoral Research Symposium, Argonne, IL, September 2009.
3. Colleen Scott*
"Synthesis and Characterization of a RGD-Functionalized Conducting Polymer for the use as a Nerve Guidance Channel." Presentation, 239th National Meeting of the American Chemical Society, San Francisco, CA, March 2010.
4. Colleen Scott presented in replacement of Daniel Dyer
"Polymer Brush for Protein Separation" Presentation, 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem), Honolulu, Hawaii, USA, December 2010.
5. Colleen Scott,* Tamara Hill and Milind Bisen
"New Developments in the Synthesis and Characterization of a RGD-Functionalized Conducting Polymer for the use as a Nerve Guidance Channel." Presentation, 241th National Meeting of the American Chemical Society, Anaheim, CA, March 2011.

6. Colleen Scott,* Daniel Dyer, Gary Kinsel, Bojan Mitrovic, Stephanie Eastwood and Venney Wong "Polymer Brush Nanosponges for Protein Separations." Presentation, 241th National Meeting of the American Chemical Society, Anaheim, CA, March 2011.
7. Colleen Scott* Tamara Hill and Milind Bisen
"New Developments in the Synthesis and Characterization of a RGD-Functionalized Conducting Polymer for the use as a Nerve Guidance Channel." Poster, Gordon Research Conference, Biomaterials and Tissue Engineering, July, 2011.
8. Colleen Scott* Tamara Hill and Milind Bisen
"Progress towards the Synthesis and Characterization of a RGD-Functionalized Conducting Polymer for the use as Nerve Guidance Channel", Presentation, 16th International Symposium On Silicon Chemistry, McMaster University, Hamilton, Ontario, Canada, August 2011.
9. Colleen Scott,* Daniel Dyer, Gary Kinsel, Bojan Mitrovic, Stephanie Eastwood and Venney Wong "Polymer Brush Nanosponges for Protein Separations." Presentation, 241th Regional Meeting of the American Chemical Society, St. Louis, MO, October **2011**. (Session chair)
10. Colleen Scott, Q. Best, N. Sattenapally, D. Bush, D. J. Dyer, M. McCarroll, Krishanthi Weerasinghe, Lichang Wang "Development of Silicon Containing Fluorescent Biosensors", 6th European Silicon Days Conference, Lyon, France, 5th - 7th September **2012**.
11. Colleen Scott* and Renesha Henderson "Tris(triphenylphosphine)Rhodium(I) chloride Catalyzed Synthesis of Tri-substituted Silylamines" 245th National Meeting of the American Chemical Society New Orleans, LA. April **2013**
12. Colleen Scott*, Narsimha Sattenapally, Quinn Best and Matthew McCarroll "Development of Silicon Containing Fluorescent Biosensors" 245th National Meeting of the American Chemical Society New Orleans, LA. April **2013**
13. Colleen Scott*, Narsimha Sattenapally, Quinn Best, "Silaanthracene as Fluorescent Probes for the Detection of Fluoride Ions", 45th Silicon Symposium, Lubbock, TX. May **2013**
14. Colleen Scott, Milind Bisen and Chuangjun Liu, "Silole-Containing Polymers for Application in Organic Electronics", Poster, Gordon Research Conference, Electronic Processes in Organic Materials, May, **2014**.
15. Colleen Scott* and Milind Bisen, "Direct Arylation Polymerization Synthesis of a Series of New Silole-Benzazole Copolymers", 46th Silicon Symposium, UC Davis, CA. June **2015.**
16. Colleen Scott* and Milind Bisen, "Direct Arylation Polymerization Synthesis of a Series of New Silole-Benzazole Copolymers", Presentation, 2015 International Chemical Congress of Pacific Basin Societies (Pacifichem), Honolulu, Hawaii, USA, December **2015.**
17. Colleen Scott* Narsimha Sattenapally, Quinn Best AND Chuangjun Liu, "Tuning Fluorescent Probes for Biological Applications", Presentation, 2015 International Chemical Congress of Pacific Basin Societies (Pacifichem), Honolulu, Hawaii, USA, December **2015**.
18. Colleen Scott* and Guery Saenz, "Lignin-Derived Alternative Thermoplastics", 254th National Meeting of the American Chemical Society, Washington, DC, August, **2017**.
19. Colleen Scott*, Guery Saenz, and Eric Munyaneza "Sustainable Bio-based Polymers from Lignin-Derived Precursors", ACS Sponsored Polycondensation **2018** workshop, Alexandra, VA.
20. Colleen Scott*, Guery Saenz, and Eric Munyaneza, "Lignin-Derived Alternative Thermoplastics", Bordeaux Polymer Conference **2018**, Bordeaux, France
21. Colleen Scott* and Ranganath Wahalathantrige Don, "PolyRhodamine: Towards the Design of a Molecular Wire Biosensor", 255th National Meeting of the American Chemical Society, New Orleans, LA. March **2018**.

***Books published*:**
Colleen Scott, "The Art of Studying General Chemistry", 2011, Kendall Hunt.

Awards:
- Southeastern Conference Visiting Faculty Travel Grant Program (**2018**)
- SIU WGSS and UWPA Research, Scholarly and Creative Activity Awards
- Carl Storm Underrepresented Minority Fellowship (CSURM)

VI. TEACHING EXPERIENCE

Teaching Experience Summary

Chemistry Instructor 2015-Present

Mississippi State University Mississippi State, MS

- Taught general chemistry
- Taught organic chemistry

Chemistry Instructor 2006-2015

Southern Illinois University Carbondale Carbondale, IL

- Taught general chemistry, chemistry for allied health professionals (nursing) and organic chemistry.
- Instructed general chemistry and organic chemistry laboratory.
- Taught advance organic synthesis at the graduate level

Teaching Interest

- My teaching interests includes: Organic (both graduate and undergraduate including the laboratories), Organic Materials and Polymer Chemistry at the graduate level.
- My current graduate faculty status is Direct Dissertation
- Successfully graduated 4 doctoral students

VII. UNIVERSITY EXPERIENCE

Department Committees:
- Served on the Search Committee for Assistant Professor in Organic/Material Chemistry
- Served on Committee for Undergraduate Recruitment and Retention (chair)
- Served on Undergraduate and Graduate awards committee
- Assigned to the General Chemistry and Organic Chemistry Teaching Team
- Served on Chemistry Graduate Admission Committee

College and University Committees and Councils:
- Served on Search Committee for Interim Director of Biological Sciences in the College of Science
- Served on two Search Committees for Lectures in the College of Science
- Served on the Search Committee for Assistant Professor in Geology in the College of Science

- Served on the Search Committee for Director of the Material Technology Center for the University
- Served on University-Level Teaching Excellence Award Committee

VIII. PROFESSIONAL SERVICE

1. Member of the American Chemical Society
2. Member of Material Research Society
3. Panel reviewer NSF CHE MSN (**2014, 2015, 2017**) and NSF CCI – (**2016**)
4. Panel reviewer NSF CCI – (**2016**)
5. Reviewer for peer reviewed journals: Organometallics and ACS Applied Materials & Interfaces, Langmuir, Journal of Polymer Science, Part A: Polymer Chemistry, Journal of Materials Chemistry C and Macromolecules.
6. Direct workshop for the Southern Illinois Partnership for Achievement in Mathematics & Science (SIPAMS) Program (**2012, 2013**).
7. Participated in judging of undergraduate research at Southern Illinois University (2007-2012) and the Annual Biomedical Research Conference for Minority Students (ABRCMS) national meeting (**2009**).
8. Mississippi Academy of Sciences (MAS) Chemistry and Chemical Engineering Division (Co-chair, **2019,** chair**, 2020**)
9. The Southeastern Regional Meeting of the American Chemical Society (SERMACS) – (Symposium Co-organizer, **2019**)
10. Polymer for Advance Technology **2019**, (Co-chair session).
    NSF Funded LS-PAC MODELS (LS-PAC MODELS), **2019**, (External Advisory Board)