

# SHAUN M. WILLIAMS, PHD

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51 Saint Charles Ct.  
Hickory, NC 28601

## EDUCATION

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- PhD** The Ohio State University, Chemical Physics June 2006  
Dissertation: "Characteristics and applications of the infrared enhanced transmission of metallic subwavelength arrays"  
Committee: James V. Coe (chair), Terry J. Gustafson, Walter R. Lempert
- MS** Lenoir-Rhyne University, Online Teaching & Instructional Design May 2019
- BA** Capital University, Chemistry May 2000  
Graduated Magna Cum Laude  
Minored in Physics

## TEACHING AND PROFESSIONAL EXPERIENCE

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- Lenoir-Rhyne University**, Hickory, NC June 2020 to Present  
**Dean**, College of Natural Sciences and Mathematics
- Brought together programs from various Colleges to create interdisciplinary programs
  - Brought together the natural science, mathematics, and computer science programs to form a new college
  - Design plans for moving the College forward in line with the strategic plans and direction of the University
  - Oversee the budget of the College
  - Managed faculty workloads for all faculty in the College
  - Oversee the hiring of new faculty members in the College
  - Managed the COVID-19 policies within the College.
- Lenoir-Rhyne University**, Hickory, NC Aug. 2006 to Present  
**Professor (2019 – Present), Associate Professor (2012 – 2019), & Assistant Professor (2006-2012)**, Chemistry Program
- Taught a variety of chemistry courses, including but not limited to, introductory chemistry, general chemistry, physical chemistry, and inorganic chemistry, and computation chemistry
  - Redesigned lectures and course content in: introductory chemistry, general chemistry, physical chemistry, and inorganic chemistry, and computation chemistry

- Redesigned current laboratory experiments and developed entirely new laboratory experiments in: introductory chemistry, general chemistry, physical chemistry, inorganic chemistry, and computation chemistry
- Designed and implemented a computational chemistry course (both lecture and lab)
- Developed, implemented, evaluated, and improved the first fully online, introductory chemistry course and Lenoir-Rhyne University
- Taught calculus-based general physics lecture and lab
- Repaired and maintained physical chemistry laboratory equipment
- Mentored students chemistry research projects
- Led a chemistry-biology collaborative research project

**Capital University**, Columbus, OH

Jan. 2004 to May 2006

**Adjunct Instructor of Physics**, Physics Program

- Taught several sections of general physics labs
- Designed, implemented, and set up physics labs

**The Ohio State University**, Columbus, OH

June 2002 to June 2006

**Graduate Research Assistant**, Department of Chemistry

- Designed and manufactured experimental apparatuses for use in the lab
- Wrote various computer programs in both C, C++, and Fortran
- Trained new research group members
- Served as laboratory safety officer for the research group
- Managed group members on large projects

## UNIVERSITY SERVICE

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**Chair, Faculty Assembly**, 2019 – Present

- Organized and prepared the monthly meetings of the Faculty Assembly
- Streamlined the meeting agendas to help the meetings run smoother as well as being a more effective use of time
- Represented the faculty in meetings of the University President's cabinet
- Served as member of the Executive Committee
- Worked to redesign the faculty committee structure to streamline it as well as ensure that the committee meet the needs to the faculty
- Led discussions into major changes to the Faculty Constitution to create a more flexible representative system
- Facilitated meetings between various faculty and administrative personnel

**Chair, Academic Program Review Design Strategic Planning Team**, 2019 – Present

- Designed the timeline and scope of the team's task
- Led the review of the current academic review policy
- Researched best-practices in academic program review
- Developed the criteria upon which all the academic programs will be reviewed

- Developed the structure and timeline of the new academic review process
- Facilitated the creation of a program review guide and template

**Efficiency in Faculty Workload Strategic Planning Team, 2019 – Present**

- Investigated how faculty workload is handled in practice
- Interviewed department chairs to understand how they handle workload
- Reviewed LR policy to look for conflicts with practice
- Reviewed data on the workload
- Reviewed better methods of calculating workload to ensure faculty equity
- Met with the Faculty Status and Hearing Committee to facilitate communication between the work the team did and the work of this standing committee

**Chair, Judicial Review Board, 2018 – Present**

- Coordinated with the Office of Student Life on appeals cases
- Judged the merit of student appeals
- Decided, based on the appeal's merit, whether an appeal hearing should be held
- Organized the appeal documentation for discussion by the Judicial Review Board
- Explained the evidence and facilitated the discussion of the Board
- Reported the findings of the Board to the student(s) involved, the Office of Student Life, and the Office of Academic Affairs

**Chemical Safety and Hygiene Officer, 2010 – Present**

- Collected and organized the chemical stockroom
- Collected, organized, and worked with outside vendors to dispose of chemical waste
- Developed a web-based system to track the chemical inventory and keep record of chemical waste, including associated hazards
- Worked with the faculty in all the natural sciences to ensure they understand how to use our inventory system
- Instructed the faculty in the natural sciences in the guidelines for disposal of chemical waste
- Worked with our student lab assistants to ensure that they are doing their jobs safely

**Vice-Chair, Faculty Assembly, 2016 – 2019**

- Maintained records of faculty attendance at meetings
- Filled in for the faculty secretary during a sabbatical

**Academic Programs Committee, 2012 – 2015**

- Reviewed new program applications
- Reviewed curricular change proposals
- Maintained ongoing dialogue with other faculty member concerning issues with proposals

### **Student Conduct Council, 2008 – 2010**

- Served on a variety of student conduct cases

### **Search Committees, Various**

- Served as chair of sustainability studies faculty search committee
  - Distributed the application materials
  - Organized the committee meetings
  - Scheduled and carried out the calls to applicants' references
  - Scheduled the on-campus interviews
  - Organized the day itineraries for the interviewees
  - Ensured the interviewees arrangements were met
  - Reported the decision of the committee to the Provost
- Member of a variety of search committees for faculty positions, a library director position, the vice-president of finance and administration position

### **Chair, SOURCE Committee, 2012 – 2013**

- Organized the committee into task groups with specific goals
- Ensured that the task groups were meeting project goals in a timely manner

### **SOURCE Committee, 2009 – 2012**

- Member of the inaugural Symposium On Undergraduate Research and Creative Expression (SOURCE) committee
- Helped design the structure of the symposium
- Reviewed student submitted abstracts for inclusion in the symposium
- Organized the accepted abstracts into themed presentation sessions

### **SACS-COC Accreditation Support Committee, 2009 – 2010**

- Compiled information regarding the procedures and structures in place for student complaints
- Evaluated whether the procedures and structures were being followed
- Wrote up the findings for inclusion in the University's accreditation report

### **Recruitment and Freshman Advising Events, Various**

- Talked with students and parents concerning the natural science programs
- Helped incoming students plan their freshman year and schedule their classes

## **HONORS AND AWARDS**

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**Lenoir-Rhyne University Faculty Research Fund for the Natural Science** 2015 – Present  
“Application of Infrared Enhanced Transmission Properties of Metallic Microarrays Towards Detection and Characterization of Bacteria”

**Books**

Shaun Williams, *The Infrared Enhanced Transmission of Metallic Subwavelength Arrays: Characteristics and Applications*. VDM Verlag Dr. Müller Aktiengesellschaft & Co. KG; Saarbrücken, Germany. 2009.

**Journal Publications**

James V. Coe, Shaun M. Williams, and Kit H. Bowen, "Photoelectron Spectra of Hydrated Electron Clusters vs. Cluster Size: Connecting to Bulk," *International Reviews in Physical Chemistry* 27(1) (2008) 27–51.

James V. Coe, Kenneth R. Rodriguez, Shannon Teeters-Kennedy, Katherine Cilwa, Joseph Heer, Hong Tian, and Shaun M. Williams, "Metal Films with Arrays of Tiny Holes: Spectroscopy with Infrared Plasmonic Scaffolding," *The Journal of Physical Chemistry C* 111(47) (2007) 17459–17472.

Shannon M. Teeters-Kennedy, Shaun M. Williams, Kenneth R. Rodriguez, Katherine Cilwa, Dan Meleason, Alexandra Sudnitsyn, Frank Hrovat, and James V. Coe, "Extraordinary Infrared Transmission of a Stack of Two Metal Micromeshes," *The Journal of Physical Chemistry C* 111(1) (2007) 124-130.

Kenneth R. Rodriguez, Shaun M. Williams, Matthew A. Young, Shannon Teeters-Kennedy, Joseph M. Heer, and James V. Coe, "Carbon Chains and the (5,5) Single-Walled Nanotube: Structure and Energetics Versus Length," *Journal of Chemical Physics* 125 (2006) 194716.

Shannon M. Teeters-Kennedy, Kenneth R. Rodriguez, Trisha M. Rogers, Keith A. Zomchek, Shaun M. Williams, Alexandra Sudnitsyn, Lauren Carter, Vadim Cherezov, Martin Caffrey and James V. Coe, "Controlling the Passage of Light through Metal Microchannels by Nanocoatings of Phospholipids," *Journal of Physical Chemistry B* 110(43) (2006) 21719-21727.

James V. Coe, Shaun M. Williams, Kenneth R. Rodriguez, Shannon Teeters-Kennedy, Alexandra Sudnitsyn, and Frank Hrovat, "Extraordinary Infrared Transmission of Metallic Arrays of Subwavelength Holes," *Analytical Chemistry*, A-Pages 78 (2006) 1384.

Shaun M. Williams and James V. Coe, "Dispersion Study of the Infrared Transmission Resonances of Freestanding Ni Microarrays," *Photonics* 1 (2006) 87-93.

Kenneth R. Rodriguez, Summit Shah, Shaun M. Williams, Shannon Teeters-Kennedy, and James V. Coe, "Enhanced Infrared Absorption of Self-Assembled Alkanethiol Monolayers Using the Extraordinary Infrared Transmission of Metallic Arrays of Subwavelength Apertures," *Journal of Chemical Physics* 121 (2004) 8671-8675.

Shaun M. Williams, Kenneth R. Rodriguez, Shannon Teeters-Kennedy, Summit Shah, Trisha M. Rogers, Amanda D. Stafford, and James V. Coe, "Scaffolding for Nanotechnology Extraordinary Infrared Transmission of Metal Microarrays for Stacked Sensors and Surface Spectroscopy," *Nanotechnology* 15 (2004) S495-S503.

Shaun M. Williams, Amanda D. Stafford, Trisha M. Rogers, Sarah R. Bishop, and James V. Coe, "Extraordinary Infrared Transmission of Cu-Coated Arrays with Subwavelength Apertures: Hole Size and the Transition from Surface Plasmon to Waveguide Transmission," *Applied Physics Letters* 85 (2004) 1472-1474.

Shaun M. Williams, Kenneth R. Rodriguez, Shannon Teeters-Kennedy, Amanda D. Stafford, Sarah R. Bishop, Ushani K. Lincoln, and James V. Coe, "Use of the Extraordinary Transmission of Metallic Subwavelength Arrays To Study the Catalyzed Reaction of Methanol to Formaldehyde on Copper Oxide," *The Journal of Physical Chemistry B* 108 (2004) 11833-11837.

Shaun M. Williams, Amanda D. Stafford, Kenneth R. Rodriguez, Trisha M. Rogers, and James V. Coe, "Accessing Surface Plasmons with Ni Microarrays for Enhanced IR Absorption by Monolayers," *The Journal of Physical Chemistry B* 107 (2003) 11871-11879.

## **PATENTS**

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J.V. Coe, S.M. Williams and K.R. Rodriguez, "Coated Biperiodic Metallic Mesh Arrays with Molecular Monolayers and Lipid Bilayers Thereon," U.S. Patent #6,863,991 B1, March. 8, 2005.

J.V. Coe and S.M. Williams, "Method for Uniform Reduction of Apertures to Micron and Submicron Dimensions Using Commercial Biperiodic Metallic Mesh Arrays and Devices Derived Therefrom," U.S. Patent #6,797,405 B1, Sept. 28, 2004.

## **PRESENTATIONS AND INVITED LECTURES**

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**Paper Presentation**, Shaun M. Williams, Kenneth R. Rodriguez, Shannon Teeters-Kennedy, Amanda D. Stafford and James V. Coe. "Using the Extraordinary Infrared Transmission of Metallic Subwavelength Arrays to Study the Catalyzed Reaction of Methanol to Formaldehyde on Copper Oxide" at the 59th International Symposium on Molecular Spectroscopy, June 22, 2004.

**Paper Presentation**, Shaun M. Williams, Kenneth R. Rodriguez, Amanda D. Stafford, Sarah R. Bishop, Ushani K. Lincoln and James V. Coe. "Accessing Surface Plasmons in the Infrared with Metal Microarrays" at the 58th International Symposium on Molecular Spectroscopy, June 16, 2003.

**Paper Presentation**, Shaun M. Williams, Amanda D. Stafford and James V. Coe. "Using the Unusual Optical Properties of Biperiodic Metallic Meshes to Follow the Chemistry of Methoxy Radical Adsorbed on the Metal Surface" at the 57th International Symposium on Molecular Spectroscopy, June 20, 2002.

#### **PROFESSIONAL SERVICE**

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**Appointed Chair, Annual Meeting Committee**

North Carolina Academy of Sciences, 2014 - 2017

**Vice-President**

North Carolina Academy of Science, 2013 – 2014

**Elected Member of Board of Directors**

North Carolina Academy of Sciences, 2010 – 2012

**Workshop Organizer**

Collegiate Academy of the North Carolina Academy of Science Research and Career Workshop, 2011

#### **PROFESSIONAL AFFILIATIONS**

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Kappa Delta Pi, International Honor Society in Education

American Chemical Society

American Physical Society