Stephen A. Cooke PhD
Curriculum Vitae

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Professional Preparation

Experience

2020-Present: Professor, School of Natural and Social Sciences, Purchase College, State University of New York.

2013-2020: Associate Professor, School of Natural and Social Sciences, Purchase College, State University of New York.

2011-2013: Assistant Professor, School of Natural and Social Sciences, Purchase College, State University of New York.

2011: Relocation to New York.

2011: Associate Professor with tenure, Department of Chemistry, University of North Texas.

2005-2011: Assistant Professor, Department of Chemistry, University of North Texas. Concurrent to this position, and between 2010-2011, I was appointed an Affiliated Professor, Department of Physics, University of North Texas.

2003-2005: Research Associate at the Department of Chemistry, The University of British Columbia, Vancouver, Canada.

2001-2003: Post-doctoral fellow at the Department of Chemistry, The University of British Columbia, Vancouver, Canada with Prof. Michael C. L. Gerry.

2000-2001: Post-doctoral fellow at the Department of Chemistry, Kemitorvet, Building 207, Technical University of Denmark, DK-2800 Kgs. Lyngby, Denmark with Prof. Svava Ósk Jónsdóttir.

1999-2000: Research Scientist for Globol Chemicals Ltd (*sic*), Station Road, Bampton, Tiverton, EX16 9NG, England. Responsibilities included developing new home fragrancing methods, troubleshooting production issues and presenting technical information to a europe-wide customer base.

Formal Education

1995-1999: Ph.D. at the School of Chemistry, University of Exeter, Devon, England. Supervisor: Professor Anthony C. Legon, FRS. Title of thesis: "The 'Halogen' Bond: Investigations of the Rotational Spectra of Lewis Bases with Dihalogens".

1992-1995: B.Sc.(Hons) at the School of Chemistry, University of Exeter, Devon, England. Classification of degree: First Class.

Publications and Citation Metrics

A list of my 103 publications from peer reviewed, international journals has been prepared below starting on **page 25**. A list of my undergraduate and graduate research advisees, most of whom have contributed to published works or conference presentations (see **page 9**), has been prepared below starting on **page 20**. My publications have generated 2290 total citations, my h-index is 27, and my i10-index is 66 (retrieved from Google Scholar, 1/31/2024). Google scholar also reveals that I have had 402 citations since 2019. According to researchgate.net I have a Research Interest Score of 820.1 which is higher than 91 % of Research Gate members.

Funding

Current

· United States Department of Energy, Heavy Element Chemistry Program, "Studying f-Electron Contributions in Thorium- and Uranium-Containing Molecules", with Prof. G. S. Grubbs, Contract DOE0000263750 **$558,549**, 9/2022 - 8/2025.

· National Science Foundation, Division of Chemistry, "MRI: Development of a Broadband Spectrometer with Multiple Horn Antenna Detection and Chiral Coherent Control for Rotational Spectroscopy", PI's Profs. G. S. Grubbs and K. Donnell, NSF Award 2019072 **$1,500,000**, 9/2020 - 8/2023.

Completed

· National Science Foundation, Division of Chemistry, "Spectroscopic studies of ions and metal-containing molecules and complexes", Co-PI with Prof. Stew Novick, NSF Award 1565276 **$509,000** 9/2016 - 8/2021.

· American Chemical Society Petroleum Research Fund "The Characterization and Conformational Preferences of Long Alkyl Chains Using Advanced Broadband Microwave Spectroscopy", **$65,000** 07/2013 - 06/2017.

· National Science Foundation Course Curriculum and Laboratory Improvement (CCLI) Award "Improving the biochemistry curriculum through innovative and collaborative hands-on and virtual laboratory experiences". PI: Frank H. Bellevue III. Co-PI's Joe Skrivanek, Joanne Tillotson, Taina Chao, Mark Condon. **Please note** that I am **not** a creative participant in this award. I simply act as a point person at Purchase College. **$250,000** 2010 - 2016.

· International Union of Pure and Applied Chemistry (IUPAC), "Common Values of Nuclear Electric Quadrupole Coupling Terms for Appropriate Nuclei in Functionalized Hydrocarbons", Project No.: 2010-048-3-100. **$5,000**.

· US Department of Energy "Experimentally Characterizing the Electronic Structures of f-Electron Systems Using Advanced High Resolution Fourier Transform Microwave Spectroscopies", DE-FG02-12ER16309, Single PI. **$115,000** 07/2012 - 04/2014.

· National Science Foundation Chemistry Research Instrumentation and Facilities : Instrument Development (CRIF:ID). "Development of a Pulsed Nozzle, Fourier Transform Rotational Spectrometer Operable Below 1000 MHz for Chemistry Research", CHE-0820833, Single PI. **$320,758** 08/2008 - 09/2012.

· US Department of Energy "Experimentally Characterizing the Electronic Structures of f-Electron Systems Using Advanced High Resolution Fourier Transform Microwave Spectroscopies", DE-SC0003934, Single PI. **$65,000** 06/2010 - 05/2011.

· Petroleum Research Fund administered by the American Chemical Society Type G Award 2006-2008. "Fourier Transform Microwave Spectroscopy of Gas Phase Metal-Containing Compounds, Complexes and Clusters" **$35,000**.

· Petroleum Research Fund administered by the American Chemical Society Summer Research Fellowship 2007. **$8,000**.

· A total of **$25,000** from intramural funding at the University of North Texas.

Awards and Honors

· 2021 - Present: Adjunct Professor, Department of Chemistry, Missouri University of Science and Technology, MO. This is an honorary position.

· 2017 - Present: Taina Chao Fellow.

· 2011 - Present: Visiting Scholar, Department of Chemistry, Wesleyan University, CT. This is an honorary position.

· 2016: Westchester Chemical Society Distinguished Scientist Award.

· 2014 - 2016: Doris and Carl Kempner Distinguished Professor.

· 2007: Oak Ridge Associated Universities Ralph E. Powe Junior Faculty Enhancement Award.

Teaching Experience (approximate class enrollments in parentheses)

2011-Present (a) General Chemistry 1 and labs (60-90, Fall semesters).
(b) College Physics I (50, Fall semesters), an algebra based physics class serving the science majors and pre-med post-baccalaureates.
(c) College Physics II (40, Spring semesters).
(d) Physical Chemistry plus lab (10, Spring semester, odd number years).
(e) Chemical Instrumentation and Analytical Methods plus lab (10, Spring semester, even number years).
(f) Chemistry in the Arts (35, Spring semesters), a non-science majors class focusing on the chemistry of art forensics and conservation.
(g) Junior and Senior Biochemistry and Chemistry Seminars (20, Spring and Fall).
(h) General Chemistry I and II in accelerated format (40 students, Summers).
(i) I advise several senior project (4) and independent study students (2).

2005-2011: (a) Physical Chemistry 1 (55, fall semesters).
(b) High Resolution Molecular Spectroscopy (18, Fall).
(c) Graduate Physical Chemistry (20, Spring).
(d) Problem Solving in the Chemical Sciences (8, Spring).
(e) General Chemistry for non-science majors (75, Summers).
(f) I advised eight graduate students.

2002-2004: During this period I provided guidance to two undergraduate and two graduate students working in the laboratory of Prof. M. C. L. Gerry at the University of British Columbia, Canada.

1995-1997: Demonstrator for the undergraduate physical chemistry laboratory (30), University of Exeter.

Service, Leadership and Community Engagement

· Chair of Biochemistry and Chemistry, Purchase College SUNY, 2014 - present.

· Member of the Middle States Self Study Steering Committee (MS^4C), Purchase College SUNY, 2019 - 2022. Co-chair of the Standard VII workgroup on Governance, Leadership, and Administration. Re-accreditation was successful.

· Member of the Taskforce on Institutional Learning Outcomes, Purchase College, SUNY, Summer 2021.

· Member of the Continuity of Programs and Services Committee, Purchase College, SUNY, Summer 2020. This was a committee formed to address the challenges regarding the COVID-19 pandemic.

· Chair of the Professional Standards and Awards Committee (PSAC), a standing committee of the Faculty @ Large, Purchase College SUNY, 2019 - 2021.

· Member of the Purchase College Pre-medical Advisory Committee, 2011 - present, Chair of Committee 2013-2014.

· Member of the Undergraduate Research Awards Committee, School of Natural and Social Sciences, Purchase College, 2011 - present.

· Editorial Board Member, Journal of Spectroscopy, 2012 - present.

· Member of the Editorial Board for the Journal of Molecular Spectroscopy, July 2014 - July 2017.

· Member of the International Advisory Committee for the International Symposium on Molecular Spectroscopy, 2014 - 2017.

· Co-organizer with Dr. Andrea Minei of a minisympoium "Spectroscopy in the Classroom" as part of the 70th International Symposium on Molecular Spectroscopy, at the University of Illinois, Urbana-Champaign, June 23rd and June 25th 2015.

· Search Committee Chair, Biochemistry and Chemistry lab preparator, School of Natural and Social Sciences, Purchase College, 2015. (Ryuuichi Uehara)

· Search Committee Member, Math and Computer Science faculty position, School of Natural and Social Sciences, Purchase College, 2015. (Dr. Knarik Tunyan)

· Search Committee Chair, Organic Chemistry faculty position, School of Natural and Social Sciences, Purchase College, 2014. (Dr. Monika Eckenberg).

· Co-founder and organizer of the first annual "Undergraduate Research Symposium on High Resolution Molecular Spectroscopy and Structure", Wesleyan University, April 12th, 2014.

· "Parliamentarian" for the Purchase College Faculty at Large meetings, 2012 - 2014.

· Reviewer for Journal of Molecular Spectroscopy, Journal of the American Chemistry Society, Chemical Physics, Chemical Physics Letters, Journal of Physical Chemistry and National Science Foundation.

· Member of the Royal Society of Chemistry and the New York Academy of Sciences.

· Judge, High School Science Fairs: (i) Westchester-Rockland Junior Science and Humanities Symposium, John Jay High School, Feb 4th 2012, and Feb 2nd 2013; (ii) Westchester Science and Engineering Fair, Sleepy Hollow High School, March 10th 2012 and March 9th 2013; (iii) Westlake Science Fair, Westlake High School, June 9th 2012.

· Proctor, New York Local Section of the American Chemical Society 45th International Chemistry Olympiad, Purchase College, Saturday 3rd February, 2013.

· Session Chair, Ohio State University International Symposium on Molecular Spectroscopy, Columbus, Ohio, 2004, 2005, 2006, 2008, 2009, 2011, 2013, 2015, 2017, and 2018.

· Academic Integrity Committee member, Purchase College, 9/25/2012, 2/11/2013.

· Task Group Chair, International Union of Pure and Applied Chemistry, Project No.: 2010-048-3-100 (See funding below), 2011 - 2013.

· Search Committee Member, Biochemistry faculty position, School of Natural and Social Sciences, Purchase College, 2011. (Dr. Elizabeth Middleton).

· Faculty Senator, University of North Texas, 2010 - 2011.

· Undergraduate Advisory Committee (UAC) Member, College of Arts and Sciences, University of North Texas, 2009 - 2011

· Undergraduate Advisor, serving 200+ declared chemistry majors, Department of Chemistry, University of North Texas, 2009 - 2011.

· Undergraduate Curriculum Committee (UCC) Member, Department of Chemistry, University of North Texas, 2007 - 2011.

· Instrument Committee Member, Department of Chemistry, University of North Texas 2005 - 2011.

· Faculty Advisor for Alpha Chi Sigma, the Professionsal Chemistry Fraternity, Beta Eta chapter, University of North Texas, 2008 - 2011.

· Co-organizer/Centennial Committee Member, University of North Texas Chemistry Centennial Celebration, October 2011.

· Search Committee Member, Department of Chemistry, University of North Texas, 09/2008 - 01/2009. (Drs. Robby Petros and Justin Youngblood).

Skills

Computational: Programming: Fluent in FORTRAN 77, LabVIEW, Java, Python, Gawk; Capable in C, C++. Familiar with UNIX, DOS, iOS, and Windows environments.

Managerial: As a research scientist at Globol Chemicals Ltd (*sic*), England, I managed a small group of 4 people. Captain of school rugby team.

Group work: I have successfully worked with people from 11 different countries on a variety of academic projects. I am currently collaborating with Dr. W. C. Bailey, Kean University, Prof. J. Bevan, Texas A & M University, Prof. Z. Kisiel, Polish Academy of Sciences, Prof. J. Laane, Texas A & M University, Prof. Stew Novick, Wesleyan University, Prof. Pete Pringle Wesleyan University, and Dr. Cristina Puzzarini, University of Bologne.

Invited Talks

18. "The Structures and Dynamics of Some Fluorinated Organic Compounds", at the Stew Novick Memorial Symposium, January 28th 2024, Wesleyan University, Middletown, CT.

17. "The Surprising Structures and Dynamics of Some Fluorinated Organic Compounds", at the St. Louis Award Symposium, October 1st 2021, Southern Illinois University - Edwardsville, honoring Prof. Leah O'Brien.

16. "Time Domain Signal Processing in Molecular Rotational Resonance Spectroscopy", at the 99th Canadian Chemistry Conference and Exhibition 2016 in Halifax, Nova Scotia. Session PT6, Talk 1608, honoring Prof. M. C. L. Gerry.

15. "Assigning Microwave Spectra", presented to (i) Wesleyan University, Middletown, CT, April 2nd, 2013. (ii) College of Mount St. Vincent, Riverdale, NY, April 17th, 2013. (iii) Manhattanville College, Purchase, NY, April 29th, 2013.

14. "Experimentally Characterizing the Electronic Structures of f-Electron Systems Using Advanced High Resolution Fourier Transform Microwave Spectroscopies", Department of Energy Basic Energy Sciences Heavy Element Chemistry and Separations contractors meeting, Gaithersburg, Maryland, April 21st - 24th, 2013.

13. "Managing the Scientific Revolution in the Scope, Use, and Production of Rotational Spectroscopic Data", Wesleyan University, Middletown, CT, April 5th, 2013.

12. "Towards the Structural Characterization of Fluorinated Polymers Using Advanced Methods in Rotational Spectroscopy", Emory University, Atlanta, GA, April 9th, 2012.

11. "Some Things We Can Do With A Microwave Spectrometer", University of Kentucky, KY, October 2010.

10. "Characterizing the Chemistry of the Laser Ablation Source Using Chirped Pulse Fourier Transform Microwave Spectroscopy", Talk 231, Boston, MA, ACS National Meeting, Fall 2010.

9. "Shape Sensitive Molecular Detection", Amherst College, Amherst, MA, April 2010.

8. "The High Resolution Pure Rotational Spectrum of Lead Monochloride from 8 to 18 GHz and Opportunities at the Southern Microwave Spectroscopy Consortium", Oklahoma University, Norman, OK, March 4th 2010. Part of the Spectroscopy of Discrete-Symmetry-Sensitive Molecules (SDSSM - I) meeting organized by Prof. Neil Schafer-Ray.

7. "Laser Ablation Chirp Pulse Fourier Transform Microwave Spectroscopy", Session PT5 Frontiers in Molecular Spectroscopy, 91st Canadian Chemistry Conference, Edmonton, AB, Canada, May, 2008.

6. "Measuring Highly Resolved Molecular Spectral Signatures Between 0.5 and 100 GHz", Wesleyan University, Middletown, CT, May 2nd, 2008.

5. "Observation of Relativistic Effects in the Microwave Spectra of Heavy Element-containing Molecules", University of Texas at Dallas, Dallas, TX, September 19th, 2007.

4. "The Pure Rotational Spectroscopy of Heavy Element-Containing Molecules Beyond the Limit of the Born-Oppenheimer Approximation", LeTourneau University, May 3rd, 2006.

3. "Relativistic Effects in Heavy Element Chemistry: A Spectroscopic Investigation", Tarleton State University, October 25th, 2005.

2. "The Spectroscopy of Heavy Metal-Containing Diatomic Molecules at an Unprecedented Resolution", physical chemistry seminar, Department of Chemistry, University of British Columbia, 2003.

1. "Adventures in Microwave Spectroscopy: A Powerful Experimental Technique", physical chemistry seminar, Department of Chemistry, University of British Columbia, 2001.

International Conference Contributions

Students are in italics

76. "The Microwave Spectrum of the Difluorocyanomethyl radical, CF_2CN", Lu Kang, Ha Vinh Lam Nguyen, *Christopher Falls*, *Alexander Seys*, Wallace C. Pringle, Thomas A. Blake, Stewart E. Novick, S. A. Cooke. Talk TN03, 75th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2022.

75. "On the Choice of Hamiltonian Reduction and Representation for the Rotational Spectrum of 1,1-Difluoroacetone Recorded to 640 GHz", S. A. Cooke, Peter Franke, Peter Groner, L. Margules, R. A. Motiyenko. Talk WF07, 75th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2022.

74. "Explainer: Effects of Nuclear Quadrupole Coupling Tensor Magnitude, Asymmetry, and Orientation on the Appearance of Rotational Hyperfine Structure", S. A. Cooke, Talk FH11, International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2021.

73. "Microwave Spectra of a Potential Four-Fold Internal Rotor, Phenylsulfur Pentafluoride", *Joshua Signore*, *Christopher Falls*, Susanna Stephens, Daniel Obenchain, Carlos Jimenez-Hoyos, S. A. Cooke, Stewart Novick, Talk TA06, International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2021.

72. "Combination of Iodine Quadrupole Coupling and Essentially Free Methyl Internal Rotation in 3-Iodotoluene", *Joshua Signore*, Ha Vinh Lam Nguyen, Wallace Pringle, S. A. Cooke, and Stewart Novick Talk WH08, International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2021.

71. "A Microwave Study of Three Bromine-Containing Molecules: CBr_2F_2, AgBr, and H_2-AgBr", *Joshua Signore*, *Christopher Falls*, Corey Evans, Wallace Pringle, S. A. Cooke, Stewart Novick, and Daniel Obenchain, Talk FK10, International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2021.

70. "An Investigation of the Nuclear Quadrupole Coupling Tensors of 2-Bromopyridine using the Extended Townes-Dailey Analysis", *Angela Y. Chung*, *Eric A. Arsenault*, Susanna L. Stephens, Wallace C. Pringle, Carlos A. Jimenez-Hoyos, S. A. Cooke, Stewart E. Novick, Talk WI07, 74th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2019.

69. "1-Iodopentane, Experiments and Calculations", Susanna L. Stephens, *Joshua A. Signore*, Lan Cheng, William C. Bailey, S. A. Cooke, Stewart E. Novick, Talk TJ04, 74th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2019.

68. "Conformational Isomerism of N-Butyl Nitrate Studied by Microwave Spectroscopy", Susanna L. Stephens, *Joshua A. Signore*, Carolyn Brauer, Thomas A. Blake, S. A. Cooke, Stewart E. Novick, Talk TJ03, 74th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2019.

67. "A Study of the Conformational Isomerism of N-Propyl Nitrate by Microwave Spectroscopy", *W. Orellana*, Susanna L. Stephens, Stewart E. Novick, S. A. Cooke, Carolyn Brauer, Thomas A. Blake, Talk TJ02, 74th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2019.

66. "2-Methyl-1-hexen-3-yne and 3-Hexyn-2-one Adventures in Methyl Group Internal Rotation", Susanna L. Stephens, Robert Karl Bohn, Stewart E. Novick, S. A. Cooke, Talk FD06, 73nd International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2018.

65. "Conformational Isomerism of 1-Iodopentane", Susanna L. Stephens, *Joshua A. Signore*, Daniel A. Obenchain, Robert Karl Bohn, Stewart E. Novick, S. A. Cooke, Talk WJ06, 73nd International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2018.

64. "Further Studies of a Four-Fold Barrier toInternal Rotation: The Rotational Spectra of Propen-1-ylsulfur Pentafluoride and Buten-1-ylsulfur Pentafluoride", *W. Orellana*, Susanna L. Stephens, Stewart E. Novick, S. A. Cooke, Talk TK11, 73nd International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2018.

63. "Torsional Splitting and Four-Fold Barrier to Internal Rotation: The Rotational Spectra of Vinylsulfur Pentafluoride", *W. Orellana*, Susanna L. Stephens, Wallace C. Pringle, Stewart E. Novick, Peter Groner, S. A. Cooke, Talk TK10, 73nd International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2018.

62. "Rotational Spectra of 4,4,4-Trifluorobutyric Acid and the 4,4,4-Trifluorobutyric acid-Formic Acid Complex", *Yoon Jeong Choi*, *Alex Trevino*,
Susanna L. Stephens, S. A. Cooke, Stewart E. Novick, Wei Lin, Talk WD04, 72nd International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2017.

61. "A Comparison of the Molecular Structures of $C_4H_9OCH_3$, $C_4H_9SCH_3$, $C_5H_{11}OCH_3$, $C_5H_{11}SCH_3$ using Microwave Spectroscopy", *Brittany E. Long*, *Juan Betancur*, *Yoon Jeong Choi*, S. A. Cooke, G. S. Grubbs II,

Jonathan Ogulnick, *Tara Holmes*, Talk TI10, 72nd International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2017.

60. "Conformational Studies of 1-Octyne from Rotational Spectroscopy", *Mark P. Maturo*, Daniel A. Obenchain, Robert Melchreit, S. A. Cooke, Stewart E. Novick, Talk TC02, 72nd International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2017.

59. "Some Signal Processing Techniques for use in Broadband Time Domain Microwave Spectroscopy", S. A. Cooke, Talk FC09, 71st International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2016.

58. "The Effect of Terminal Substitution on the Helical Carbon Structure of Fluoro-Alkane Chains: A pure Rotational Study of CH_2OH-$C_{n-1}F_{2n-1}$ (n = 4, 5, 6)", *Aaron Z. A. Schwartz*, *Mark P. Maturo*, Daniel A. Obenchain, S. A. Cooke, Talk WJ05, 71st International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2016.

57. "A Study of the Conformational Isomerism of 1-Iodobutane by Microwave Spectroscopy", *Eric A. Arsenault*, *Yoon Jeong Choi*, Daniel A. Obenchain, S. A. Cooke, Thomas A. Blake, Stewart Novick, Talk WE02, 71st International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2016.

56. "Iodine: Many Electrons and Much to Discuss...The Nuclear Quadrupole Coupling, Nuclear Spin-Rotation, Conformational Analysis, and Structural Determination of 2-Iodobutane", *Eric A. Arsenault*, *Yoon Jeong Choi*, Daniel A. Obenchain, S. A. Cooke, Thomas A. Blake, Stewart Novick, Talk WE01, 71st International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2016.

55. "Assignment of the Perfluoropropionic Acid-Formic Acid Complex and the Difficulties of Including High K_a Transitions", Daniel A. Obenchain, Wei Lin, Stewart Novick, S. A. Cooke, Talk TE10, 71st International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2016.

54. "We Are Family: The Conformations of 1-Fluoroalkanes, $C_nH_{2n+1}F$ (n = 2, 3, 4, 5, 6, 7, 8)", Daniel A. Obenchain, *W. Orellana*, S. A. Cooke, Talk MJ03, 71st International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2016.

53. "CP-FTMW Spectroscopy of a Claisen Rearrangement Precursor Allyl Phenyl Ether", G. S. Grubbs II, Daniel A. Obenchain, *Derek S. Frank*, Stewart E. Novick, S. A. Cooke, Talk MI02, 71st International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2016.

52. "The CP-FTMW Spectroscopy and Assignment of the Mono- and Dihydrate Complexes of Perfluoropropionic Acid", G. S. Grubbs II, *Daniel A. Obenchain*, *Derek S. Frank*, Stewart E. Novick, S. A. Cooke, *Agapito Serrato III*, and Wei Lin, Talk P1203, 70th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2015.

51. "SpecFitter: A Learning Environment for the Rotational Spectroscopist", *Yoon Jeong Choi*, *Weixin Wu*, A. J. Minei, and S. A. Cooke, Talk P1229, 70th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2015.

50. "Ring Puckering Potentials of Three Fluorinated Cyclopentenes: C_5F_8, C_5HF_7, and $C_5H_2F_6$", E. A. Arsenault, B. E. Long, W. C. Pringle, Yoon Jeong Choi, S. A. Cooke, Esther J. Ocola, Jaan Laane, Talk P823, 70th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2015.

49. "Microwave Frequency Transitions Requiring Laser Ablated Uranium Metal Discovered Using Chirp-Pulse Fourier Transform Spectroscopy", *B. E. Long* and S. A. Cooke, Talk TK14, 69th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2014.

48. "Experimental and Theoretical Studies of the Pure Rotational Spectra of Lead Halides: PbF and PbCl", Spencer Norman, Richard Dawes, G. S. Grubbs II, S. A. Cooke, B. E. Long, and C. T. Dewberry, Talk WI14, 69th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2014.

47. "The Rotational Spectra, Structures and Chlorine Nuclear Electric Quadrupole Coupling Constants for a Family of Three Halogentated Cyclic Alkenes, $C_nF_{2n-4}Cl_2$; n = 4, 5, and 6", B. E. Long, *E. A. Arsenault*, *Lucas Hansen*, and S. A. Cooke, Talk RE11, 69th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2014.

46. "Monitoring the Reaction Products of Perfluoropropionic Acid and Allyl Phenyl Ether Using Chirped-Pulse Fourier Transform Microwave Spectroscopy", *Derek S. Frank*, *Daniel A. Obenchain*, Wei Lin, Stewart E. Novick, S. A. Cooke, and G. S. Grubs II, Talk FD01, 69th International Symposium on Molecular Spectroscopy, University of Illinois at Urbana-Champaign, 2014.

45. "Pure Rotational Spectra of the Reaction Products of Laser Ablated Thorium Metal and Oxygen Molecules Entrained Within Supersonic Expansions of Noble Gases", B. E. Long and S. A. Cooke, 68th Ohio State University International Symposium on Molecular Spectroscopy, 2013.

44. "Pure Rotational Spectroscopy of Asymmetric Tops in the Undergraduate Chemistry Classroom or Laboratory", A. J. Minei and S. A. Cooke, 68th Ohio State University International Symposium on Molecular Spectroscopy, 2013.

43. "Singular Value Decomposition-Based Modeling of Time Domain Signals in Broadband Microwave Spectroscopy", A. J. Minei and S. A. Cooke, 68th Ohio State University International Symposium on Molecular Spectroscopy, 2013.

42. "A Wet Dog Tunneling Motion as the Cause for the Doubled Rotational Spectrum of 1-Iodononafluorobutane", W. C. Bailey, R. K. Bohn, G. S. Grubbs II, Z. Kisiel and S. A. Cooke, 68th Ohio State University International Symposium on Molecular Spectroscopy, 2013.

41. "Torsional Splitting in the Rotational Spectrum from 8 to 650 GHz of the Ground State of 1,1-Difluoroacetone", L. Margulès, R. A. Motiyenko, P. Groner, F. De Chirico, *A. Turk*, and S. A. Cooke, 68th Ohio State University International Symposium on Molecular Spectroscopy, 2013.

40. "Microwave Spectra of Fluorinated Propionic Acids and their Hydrates", D. A. Obenchain, A. Serrato III, S. A. Cooke, S. E. Novick and Wei Lin, 68th Ohio State University International Symposium on Molecular Spectroscopy, 2013.

39. "The Common Chlorine Nuclear Electric Quadrupole Coupling Tensor for Acyl Chlorides", R. A. Powoski and S. A. Cooke, Talk RH12, 67th Ohio State University International Symposium on Molecular Spectroscopy, 2012.

38. "The Chirped-Pulse Fourier Transform Microwave (CP-FTMW) Spectrum and Potential Energy Calculations for an Aromatic Claisen Rearrangement Molecule, Allyl Phenyl Ether", G. S. Grubbs II, S. A. Cooke, and S. E. Novick, Talk TC11, 67th Ohio State University International Symposium on Molecular Spectroscopy, 2012.

37. "The Rotational Spectra of Perfluoropropionic Acid and its Hydrates", W. Lin, *A. Serrato III*, D. A. Obenchain, G. S. Grubbs II, S. E. Novick, and S. A. Cooke, Talk TC09, 67th Ohio State University International Symposium on Molecular Spectroscopy, 2012.

36. "Conformations and Barriers to Methyl Group Internal Rotation in Two Asymmetric Ethers: Propyl Methyl Ether and Butyl Methyl Ether", B. E. Long, *F. DeChirico*, and S. A. Cooke, Talk TC06, 67th Ohio State University International Symposium on Molecular Spectroscopy, 2012.

35. "A Rotational Study of 2H-3H-Perfluoropentane and its Isotopologues", *C. H. Duong*, D. A. Obenchain, S. E. Novick, and S. A. Cooke, Talk TC05, 67th Ohio State University International Symposium on Molecular Spectroscopy, 2012.

34. "A Pure Rotational Study of Two Nearly Equivalent Structures of Hexafluoroacetone Imine", D. A. Obenchain, *D. J. Frohman*, G. S. Grubbs II, B. E. Long, W. C. Pringle, S. E. Novick, and S. A. Cooke, Talk TC04, 67th Ohio State University International Symposium on Molecular Spectroscopy, 2012.

33. "The Pure Rotational Spectra of the Two Lowest Energy Conformers of n-Butyl Ethyl Ether", *B. E. Long*, G. S. Grubbs II, and S. A. Cooke, Talk RH13, 66th Ohio State University International Symposium on Molecular Spectroscopy, 2011.

32. "Methyl Group Internal Rotation in the Pure Rotational Spectrum of 1,1-Difluoroacetone", G. S. Grubbs II, S. A. Cooke, and P. Groner, Talk RH04, 66th Ohio State University International Symposium on Molecular Spectroscopy, 2011.

31. "A Look at a Series of Alkyl and Perfluoroalkyl Bromides and Chlorides", *B. E. Long*, S. A. Cooke and *G. S. Grubbs II*, Talk RH03, 66th Ohio State University International Symposium on Molecular Spectroscopy, 2011.

30. "Evidence for a Non-planar C=(CCC) structure in Hexafluoroisobutene and Hexafluoroacetone Imine: A Pure Rotational Spectroscopic Study", *G. S. Grubbs II*, *C. T. Dewberry*, *B. E. Long*, and S. A. Cooke, Talk WH14, 66th Ohio State University International Symposium on Molecular Spectroscopy, 2011.

29. "The Pure Rotational Spectrum of Perfluorooctanonitrile, $C_7F_{15}CN$, Studied Using Cavity and Chirped Pulse Fourier Transform Microwave Spectroscopies", *C. T. Dewberry*, *G. S. Grubbs II*, and S. A. Cooke, Talk WH13, 66th Ohio State University International Symposium on Molecular Spectroscopy, 2011.

28. "Cavity and Chirped Pulse Rotational Spectrum of the Laser Ablation Synthesized, Open-Shell Molecules Tin Monochloride", *G. S. Grubbs II*, *D. J. Frohman*, S. E. Novick, and S. A. Cooke, Talk TC12, 66th Ohio State University International Symposium on Molecular Spectroscopy, 2011.

27. "The Shapes of Chloropentafluoroacetone and 1,3-Dichlorotetrafluoroacetone in the Gas Phase", *G. Kadiwar*, *C. T. Dewberry*, *G. S. Grubbs II*, and S. A. Cooke, Talk RH11, 65th Ohio State University International Symposium on Molecular Spectroscopy, 2010.

26. "Hyperfine Structure in the Pure Rotational Spectrum of $^{208}Pb^{35}Cl$", *C. T. Dewberry*, *G. S. Grubbs II*, *K. C. Etchison*, and S. A. Cooke, Talk RCO7, 65th Ohio State University International Symposium on Molecular Spectroscopy, 2010.

25. "Chirped Pulse Fourier Transform Microwave Spectroscopy of SnCl", *G. S. Grubbs II* and S. A. Cooke, Talk RC06, 65th Ohio State University International Symposium on Molecular Spectroscopy, 2010.

24. "Attempts at Using IAMCALC to Analyze Low Frequency Rotational Spectra of Molecules with Internal Rotation and Nuclear Spins", *C. T. Dewberry* and S. A. Cooke, Talk TC04, 65th Ohio State University International Symposium on Molecular Spectroscopy, 2010.

23. "New High Resolution Spectroscopy of Methyl Nitrite CH_3ONO", V. Sironneau, P. Chelin, F. Kwabia Tchana, I. Kleiner, J. Orphal, O. Pirali, L. Margules, R. Motiyenko, S. A. Cooke, W. J. Youngblood, *A. Agnew*, *C. T. Dewberry*, Talk MJ12, 65th Ohio State University International Symposium on Molecular Spectroscopy, 2010.

22. "Analysis of the Rotational Spectra of 2,3,4,5,6-Pentafluorotoluene and 1-Chloro-2,3,4,5,6-Pentafluorobenzene", *A. A. Osthoff*, R. A. Peebles, S. A. Peebles, G. S. Grubbs II, S. A. Cooke, B. H. Pate, J. L. Neill and M. T. Muckle, Talk TA09, 64th Ohio State University International Symposium on Molecular Spectroscopy, 2009.

21. "Forbidden Transitions in the Very Rich Pure Rotational Spectrum of Trans-1-Iodopropane", S. A. Cooke, *C. T. Dewberry*, and *G. S. Grubbs II*, Talk MH05, 64th Ohio State University International Symposium on Molecular Spectroscopy, 2009.

20. "Measurement of the Nitrogen Hyperfine Structure on the 53 cm (562 MHz) Butryonitrile Line", S. A. Cooke, *C. T. Dewberry*, *G. S. Grubbs II*, and *A. Raphelt*, Talk MH13, 64th Ohio State University International Symposium on Molecular Spectroscopy, 2009.

19. "Measurement of the Vibrational Population Distribution of Barium Sulfide Seeded in an Argon Supersonic Expansion Following Production Through the Reaction of Laser Ablated Barium with Carbonyl Sulfide", S. A. Cooke, *C. T. Dewberry*, *G. S. Grubbs II*, and *K. C. Etchison*, Talk WF13, 64th Ohio State University International Symposium on Molecular Spectroscopy, 2009.

18. "Some Effects of Successive Fluorination on 1-Iodopropane", S. A. Cooke, *C. T. Dewberry*, and *G. S. Grubbs II*, Talk MH06, 64th Ohio State University International Symposium on Molecular Spectroscopy, 2009.

17. "A Fabry-Perot Cavity Pulsed Fourier Transform W-Band Spectrometer with a Pulsed Nozzle Source", S. A. Cooke, *C. T. Dewberry*, and *G. S. Grubbs II*, Talk WF10, 63rd Ohio State University International Symposium on Molecular Spectroscopy, 2008.

16. "The Pure Rotational Spectrum of Pivaloyl Chloride, $(CH_3)_3CCOCl$, Between 800 MHz and 18800 MHz", *G. S. Grubbs II*, *C. T. Dewberry*, *K. C. Etchison*, S. A. Cooke, *M. M. Serafin* and S. A. Peebles, Talk FC08, 63rd Ohio State University International Symposium on Molecular Spectroscopy, 2008.

15. "The Pure Rotational Spectra of the Minor Isotopes of SrS $^1\Sigma^+$, Recorded Using a Laser Ablation, Fourier Transform Microwave Spectrometer", *K. C. Ethcison*, *C. T. Dewberry*, and S. A. Cooke, Talk MI08, 62nd Ohio State University International Symposium on Molecular Spectroscopy, 2007.

14. "The Rotational Spectra of 1-Nonene and 1-Decene", S. A. Cooke, *C. T. Dewberry*, *K. C. Etchison*, *G. S. Grubbs II*, T. Cundari, R. D. Suenram and G. T. Fraser, Talk WG13, 62nd Ohio State University International Symposium on Molecular Spectroscopy, 2007.

13. "The Rotational Spectrum of Lutetium Monoxide, LuO ($X^2\Sigma^+$), Prepared Using Laser Ablation, Measured with a Cavity Pulsed Jet Fourier Transform Spectrometer", C. Krumrey, S. A. Cooke and M. C. L. Gerry, Talk RI13, 61st Ohio State University International Symposium on Molecular Spectroscopy, 2006.

12. "The Pure Rotational Spectroscopy of Heavy Metal-Containing Diatomic Molecules Beyond the Limit of the Born-Oppenheimer Approximation", S. A. Cooke and M. C. L. Gerry, 21st Austin Symposium on Molecular Structure, The University of Texas at Austin, 2006.

11. "The Geometry and Hyperfine Constants of Arsenic Monophosphide", S. A. Cooke and M. C. L. Gerry, 60th Ohio State University International Symposium on Molecular Spectroscopy, 2005.

10. "XeAuF: A New Molecule With a Xenon-Gold Covalent Bond", S. A. Cooke and M. C. L. Gerry, 20th Annual Symposium on Chemical Physics, University of Waterloo, Canada, 2004.

9. "Microwave Spectra of Noble Gas - Noble Metal Halide Complexes: Noble Gas - Noble Metal Chemical Bonds in XeAuF", Stephen A. Cooke, M. C. L. Gerry, Talk F3, 18th International Conference on High Resolution Molecular Spectroscopy, Prague, 2004.

8. "The Observation and Characterization of the Pure Rotational Spectra of LuF and LuCl", Stephen A. Cooke, C. Krumrey and M. C. L. Gerry, Talk TH03, 59th Ohio State University International Symposium on Molecular Spectroscopy, 2004.

7. "Observation and Analysis of the Pure Rotational Spectra of $X0^+$ PtS and $X0^+$ WO", Stephen A. Cooke, C. Krumrey, D. K. Russell and M. C. L. Gerry, Talk TH04, 59th Ohio State University International Symposium on Molecular Spectroscopy, 2004.

6. "The Rotational Spectroscopy of Four Antimony Containing Diatomic Molecules: SbN, SbP, SbF and SbCl", Stephen A. Cooke and M. C. L. Gerry, Talk TH05, 59th Ohio State University International Symposium on Molecular Spectroscopy, 2004.

5. "Microwave Spectra and Structure of the WO Free Radical", C. Krumrey, Stephen A. Cooke ,M. C. L. Gerry and D. K. Russell, Royal Australian Chemistry Institute, Chemical Physics Conference, Hobart, 2004.

4. "The Study of Rare Gas-coinage Metal Halide Interactions: Fourier Transform Microwave Spectroscopy of Kr-CuX (X = F, Cl)", *J. M. Michaud*, Stephen A. Cooke and M. C. L. Gerry, Talk MH01, 58th Ohio State University International Symposium on Molecular Spectroscopy, 2003.

3. "Insights into the Rare Gas - Silver Halide Interaction from a Rotational Spectroscopic and Ab Initio Study of XeAgF and XeAgCl", Stephen A. Cooke and M. C. L. Gerry, Talk MH02, 58th Ohio State University International Symposium on Molecular Spectroscopy, 2003.

2. "Hyperfine Structure in the Pure Rotational Spectra of Bismuth Mononitride, BiN, and Bismuth Monophosphide, BiP", Stephen A. Cooke, *J. M. Michaud* and M. C. L. Gerry, Talk TE01, 58th Ohio State University International Symposium on Molecular Spectroscopy, 2003.

1. "Rotational Spectra, Bond Lengths and ^{195}Pt Nuclear Spin-Rotation Constants of PtSi and PtS", Stephen A. Cooke and M. C. L. Gerry, Talk TJ10, 57th Ohio State University International Symposium on Molecular Spectroscopy, 2002.

Poster Presentations

9. "Observed Doubling in the Pure Rotational Spectra of Hexafluoroisobutene, Hexafluoroacetone Imine, and 1-Iodoperfluorobutane", *G. S. Grubbs II*, *A. Agnew*, W. C. Bailey and S. A. Cooke, Poster P18, Austin Symposium on Molecular Structure, Austin, TX, 2010.

8. "The Pure Rotational Spectrum of Lead Monochloride Recorded Using a Chirped Pulse Fourier Transform Microwave Spectrometer Equipped with a Laser Ablation Source", *C. T. Dewberry*, *G. S. Grubbs II*, and S. A. Cooke, Poster P17, Austin Symposium on Molecular Structure, Austin, TX, 2010.

7. "Chirped Pulse Fourier Transform Microwave Spectroscopy of Perfluorobutyryl fluoride, C_3F_7COF", *G. S. Grubbs II*, S. A. Cooke, and W. Lin, Poster P14, Austin Symposium on Molecular Structure, Austin, TX, 2010.

6. "Facilities for Microwave Spectroscopy at the University of North Texas", S. A. Cooke, Poster P3, Austin Symposium on Molecular Structure, Austin, TX, 2010.

5. "Oxygen-17 Hyperfine Structures in the Pure Rotational Spectra of SrO, SnO, BaO, HfO, PbO, and ThO", *R. A. Powoski*, *C. T. Dewberry*, *K. C. Etchison*, *G. S. Grubbs II*, *M. M. Serafin*, S. A. Peebles, and S. A. Cooke, Poster P4, Austin Symposium on Molecular Structure, Austin, TX, 2008.

4. "Fourier Transform Microwave Spectroscopy of PtO and Pts", S. A. Cooke, and M. C. L. Gerry,Winter School in Theoretical Chemistry. "A Frontier of Chemistry: New Species", December 13th - 16th, 2004, Helsinki, Finland.

3. "The Study of Noble Gas - Copper Halide Interactions: Fourier Transform Microwave Spectroscopy of NgCuX (Ng = Kr, Xe; X = F, Cl)", *J. M. Michaud*, Stephen A. Cooke and M. C. L. Gerry, Poster K8, 18th International Conference on High Resolution Molecular Spectroscopy, Prague, 2004.

2. "Noble Gas - Noble Metal Chemical Bonding? Microwave Spectra and Geometries of KrCuF, KrCuCl, XeAgF and XeAgCl", S. A. Cooke, *J. M. Michaud* and M. C. L. Gerry, Poster J39, 18th Colloquium on High Resolution Molecular Spectroscopy, Prague, 2003.

1. "Phase Equilibria of Carbohydrates in Aqueous Solution", Stephen A. Cooke, Svava Ósk Jónsdóttir and Peter Westh, Poster A196, 20th International Carbohydrate Symposium, Hamburg, 2000.

Other Contributions (National or Local Meetings)

Oral Presentations

4. "Structures of 2,2,3,3-tetrafluoropropionic acid and 2,3,3,3-tetrafluoropropionic acid and their hydrates". *Daniel A Obenchain*, *Agapito Serrato III*, S. A. Cooke, Stewart E Novick, Wei Lin. Talk 374, American Chemical Society 245th National Meeting, New Orleans, April 2013.

3. "Improving the biochemistry curriculum through innovative and collaborative hands-on and virtual laboratory experiences". Frank H. Bellevue III, Joe Skrivanek, Joanne Tillotson, Taina Chao, Mark Condon. **Please note** that I am **not** a creative participant in this talk, I was simply the one who attended and gave the talk. Talk 437, American Chemical Society 244th National Meeting, Philidelphia, August 2012.

2. "Chirped Pulses of Microwave Radiation as a Light Source in Fourier Transform Microwave Spectroscopy", S. A. Cooke Talk P27.00004, APS National Meeting, Portland, OR, March 2010.

1. "Characterisation of Some Prototype Hydrocarbon· · ·ClF Pre-reactive Complexes", *S. A. Cooke* and A. C. Legon, Royal Society of Chemistry, South West Spectroscopy Meeting, Southampton, 1998.

Poster Presentations

8. "A Look at a Series of Alkyl and Perfluoroalkyl Bromides", *B. E. Long* and S. A. Cooke, APS National Meeting, Dallas, TX, March 2011.

7. "Experimentally Characterizing the Electronic Structures of f-Electron Systems Using Advanced High Resolution Fourier Transform Microwave Spectroscopies", S. A. Cooke, DOE Heavy Elements Contractor's Meeting, Baltimore, MD, April, 2011.

6. "Detecting Laser Ablation Products using Fast Passage Fourier Transform Microwave Spectroscopy: The Examination of the Open Shell Molecule, SnCl", *G. S. Grubbs II* and S. A. Cooke, K1.00286, APS National Meeting, Portland, OR, March 2010.

The following posters have been presented at the University of British Columbia's annual graduate barbecue.

5. "XeAuF: A New Molecule Containing a Xenon Gold Covalent Bond", Stephen A. Cooke and M. C. L. Gerry, 2004.

4. "Theoretical and Experimental Investigation of the Rotational Spectra of WO and PtS", C. Krumrey, Stephen A. Cooke, D. K. Russell and M. C. L. Gerry, 2003.

3. "Field Shift Effects in the Rotational Spectra of Heavy Metal-Containing Complexes", Stephen A. Cooke and M. C. L. Gerry, 2003.

2. "Properties of XeAgF and XeAgCl: A Rotational Spectroscopic Investigation", Stephen A. Cooke and M. C. L. Gerry, 2002.

1. "The Rotational Spectroscopy and Characterisation of PtSi and PtS", Stephen A. Cooke and M. C. L. Gerry, 2001.

Symposia, Webinars and Workshops Attended

· "Annual Summer Teaching Conference - Pedagogy, Technology and Course Redesign", Fairfield University, May 26th, 2016.

· "Annual Summer Teaching Conference - Pedagogy, Technology and Course Redesign", Fairfield University, May 29th, 2015.

· "Annual Summer Teaching Conference - Pedagogy, Technology & Course Redesign", Fairfield University, May 29th - 30th, 2014.

· "The Art Museum and the University - Extending the Shared Vision", Yale University of Art, May 8th - 10th, 2014. Two workshops were attended at this meeting: "Teaching students to recognize the materials, techniques, and condition of paintings" with Mark Aronson, Yale Center for British Art, and "Medical-school collaborations" with Linda Fried-Laender, Yale Center for British Art.

· "Teaching as Theater", all day workshop, organized by Dr. Suzanne Kessler. Purchase College, August 29th, 2012.

· Regional Lab Safety and Chemical Hygiene Plan Workshop, Purchase College, May 24th, 2012.

· William H. Nichols Distinguished Symposium, NY-ACS section, White Plains: March 2012 with undergraduate students Karin Cascire and Ricardo Manzanares; March 2013 with undergraduate students Alise Turk, James Paulson, Imran Baksh, and Joshua Charles-Pierre; March 2014 with Jillian Glatz and Brian Herbst.

· NSF-IWBW Webinar Session # S134: Project Evaluation. March 19th 2013.

· American Chemical Society Westchester Local Section Outstanding Freshman Chemistry Awards, Pace Universtity, May 1st 2013. Awardee was Francis Clow.

Research Advisees

Undergraduate Researchers Advised at Purchase College and Senior Project Title

· Gursimran Mavi (2021 - 2022) Senior project: TBD

· Victoria Mentz (2021 - 2022) Senior project: TBD

· David Peygumbari (2021 - 2022) Senior project: TBD

· Sabrina Thapar (2021 - 2022) Senior project: TBD

· Carolyn McCoy (2020 - 2021) Senior project: "Recent Advances in Uranium Chemistry in Service of Nuclear Power".

· Christopher Grippo (2017-2018) Senior project: "Computational Modelling of the Interaction between Bitrex and Amino Acids". Currenty a Chemistry Teacher, Harrison High School, NY.

· Darren Dempster (2017-2018) Senior project: "Imaging Art Work in the Near Infra Red". Currently a teacher/artist and Representative for the Joan Mitchell Foundation.

· Elias Sayed (2017-2018) Senior project: "New Approaches to Analyses in Microwave Spectroscopy".

· Kassandra Lopez (2017-2018) Senior project: "Ab Initio Studies on SF_5-Containing Compounds". Currently a Graduate Student in Chemistry at University of Buffalo, NY.

· Lena Hopperman (2017-2018) Senior project: "New Methodologies in Multispectral Imaging of Oil Paintings".

· Bianca Rodriguez (2016-2017) Senior project: "Multispectral Imaging of Oil Paints". Currently a Senior Research Associate at Abcam, Connecticut.

· Brittany Koch (2016-2017) Senior project: "Wavelength Dependence on Oil Painting Imaging".

· Peace Okoroji (2016-2017) Senior project: "Towards a Complete Spectral Analyses of New Refigerant Gases".

· Tara Holmes (2016-2017) Senior project: "The Rotational Spectra of Two Alkyl Thiols". Currently at Temple University School of Medicine.

· Wilman Orellana (2015-2016) Senior project: "Structure of 1-fluoropentane".

· Luiggi Rodriguez (2015-2016) Senior project: "Structure of 1-fluorohexane". Currently, an ARRT Radiologic Technologist at St. John's Riverside Hospital, NY.

· Aaron Schwartz (2015-2016) Independent study. Currently a Graduate Student at NYU Grossman School of Medicine, NY.

· Yoon-Jeong Choi (2014 - 2015) Senior project: "Microwave Spectra of Partially Fluorinated Cyclopentenes". Currently an Analytical Chemistry at Boehringer Ingelheim, Connecticut.

· Weixin Wu (2014 - 2015) Senior project: "Techniques in Microwave Spectroscopy". Currently a Accounting Analyst at TMI Trading, NY.

· Daryen White (2014 - 2015) Senior project: "UV/Vis/IR Photography of Oil Paints".

· Amy Melgar (2014 - 2015) Senior project:"The Quantum Mechanics of Particles in Odd Shaped Boxes". Currently a Formulation Development Manager at Ogee, NY.

· Juan Betancur (2014 - 2015) Senior project shared with Dr. Monika Eckenberg: "Synthesis and Microwave Spectroscopy of Pentyl Methyl Ether and Hexyl Methyl Ether".

· Jennifer Cacciola (2014 - 2015) Independent study "Chemistry and Art Conservation". Currently an Artist at Saatchi Art, NY.

· Lindsey Sieber (2014 - 2015) Independent study "Advanced Methods in Multispectral Art Photography". Currently a Gallery Assistant, ODETTA, NY.

· Jisha Azhakath (2013 - 2014) Senior project: "Critical Points in the Evaporation Rates of Solutions Containing Ionic Compounds".

· Alexandra Mikhail (2013 - 2014) Senior project: "Construction of an Earth's Field Nuclear Magnetic Resonance Spectrometer".

· Alise Turk (2012 - 2013) Senior project: "Characteristic Molecular Parameters for the Airborne Detection of the Refrigerant HFE-227" - Currently a Chemistry Teacher a Rockwall-Heath High School, Texas.

· Joshua Charles-Pierre (2012 - 2013) Senior project: "The Synthesis and Characterization of Unbranched Asymmetric Ethers". Currently a Financial Literacy Consultant, NY.

· Samual Fass (2012 - 2013) Senior project: "Characterization of 2H-Nonafluorobutane and Oligomers of Polytetrafluoroethylene"

· Frank DeChirico (2011 - 2013) Independent Study. Currently a Surveyor at International Union of Operating Engineers.

· Nadeen Alkawaan (2011 - 2012) Senior project: "The Potential Energy Surface and 3-D Structure of Clozapine".

· Tiffany Bui (2011 - 2012) Senior project: "Computational Methods of Modeling the Neurotransmitter Serotonin".

Undergraduate Researchers Advised at the University of North Texas and Present Location

· Brittany Long (2010) Lecturer at Trinity University, San Antonio, TX.

· Christopher T. Dewberry (2005) Assistant Professor of Chemistry, Kettering University.

· Robert A. Powoski (REU - 2008) Chemist, French Color and Fragrance Company, New Jersey.

· Andrew Agnew (REU 2009) Lake Eerie College of Osteopathic Medicine.

· Beth Martine (2008) Senior Validation Engineer at ICU Medical.

· Daniel Shoup (2005) ProTem Research Associate, University of Oregon.

· Dalton Jojola (2010 - 2011) Chemist II at Smith and Nephew. Texas.

· Samantha Tippen (2011) Graduate student, Indiana University School of Medicine.

· Adam Harper (2011)

· Richard Hale (2011) Completing undergraduate studies at UNT

· Ryan Mabbutt (2011) Graduate Student, UNT

· Stuart Spiker (2010 - 2011) Assistant Vice President, CoB and CM Sr. Analysts, Citi Bank, Texas.

· Kimberlynn Phan (2009)

· Kate Kerr (2006) Adjunct Faculty, UNT, Texas.

· Zachary McGarrah (2005) Plant Quality Manager, Sherwin-Williams, Texas.

Graduate Students Advised at the Unversity of North Texas and Wesleyan University

· Brittany Long, Ph.D. (2015). Lecturer/Post-doc at Trinity University, San Antonio, TX.

· Kerry C. Etchison, M.Sc. (2010). Lecturer at Merced College, CA (Eli Lilly Award Winner)

· Christopher T. Dewberry, Ph.D. (2011) (Lindau Nobel Prize Meeting Invitee) (i) Post-doc at University Kentucky, with Dr. Denis Cluothier, (ii) Post-doc at University of Minnesota, with Dr. Ken Leopold, (iii) Assistant Professor at Kettering University.

· Garry S. Grubbs II, Ph.D. (2011) (Lindau Nobel Prize Meeting Invitee) (i) Post-doc at Wesleyan University, with Dr. Stew Novick, (ii) Assistant professor at Missouri University of Science and Technology. Associate professor at Missouri University of Science and Technology.

· Robert A. Powoski, M.Sc. (2011) Analytical Chemist, International Flavors and Fragrances, NJ.

· Gautam Kadiwar, M.Sc. (2010) American University of Antigua Medical School, Antigua.

Publication List for Stephen A. Cooke Ph.D.

All publications appear in peer reviewed, international journals. *Students are in italics*

As an independent faculty member at Purchase College, SUNY

103. **The Microwave Spectra of the conformers of n-butyl nitrate**
Susanna L. Stephens, Eleonore Antonelli, *Alexander B. Seys*, Ha Vinh Lam Nguyen, Stewart E. Novick, S. A. Cooke, and Thomas A. Blake *J. Mol. Spectrosc.* **397**, 111824, (2023).

102. **The Microwave Spectrum of the Difluorocyanomethyl radical, $\dot{C}F_2CN$**
Lu Kang, Ha Vinh Lam Nguyen, *Christopher B. Falls*, *Alexander B. Seys*, Wallace C. Pringle, Thomas A. Blake, Stewart E. Novick, and S. A. Cooke *J. Mol. Spectrosc.* **385**, 111618, (2022).

101. **A Study of the Conformational Isomerism of n-Propyl Nitrate by Microwave Spectroscopy**
Wilman Orellana, Susanna L. Stephens, Stewart E. Novick, S. A. Cooke, C. S. Brauer, and T. A. Blake *J. Mol. Spectrosc.* **374**, 111376, (2020).

100. **On the experimental measurement of barriers to four-fold internal rotation in pentafluorosulfanyl-containing compounds: The microwave spectra of C_3H_5-SF_5 and C_4H_7-SF_5**
Wilman Orellana, Susanna L. Stephens, Stewart E. Novick, and S. A. Cooke *J. Mol. Spectrosc.* **371**, 111300, (2020).

99. **Microwave spectra of a potential four-fold internal rotor, phenylsulfur pentafluoride**
Joshua A. Signore, *Christopher B. Falls*, Susanna L. Stephens, Carlos A. Jimenez-Hoyos, Daniel A. Obenchain, S. A. Cooke, and Stewart E. Novick *J. Mol. Struct* **1214**, 128130, (2020).

98. **Evaluation of the Substitution Structures of Two Partially Fluorinated Cyclopentanes $C_5H_3F_7$ and $C_5H_2F_8$**
A. J. Minei and S. A. Cooke *J. Mol. Struct* **1207**, 127778, (2020).

97. **Determination and Analysis of the Nuclear Quadrupole Coupling Tensors of 2-Bromopyridine**
A. Y. Chung, *E. A. Arsenault*, S. L. Stephens, W. C. Pringle, Carlos A. Jimenez-Hoyos, S. A. Cooke, and Stewart E. Novick *J. Mol. Spectroscopy* **356**, 28-31, (2019).

96. **Torsional Splitting and the Four-Fold Barrier to Internal Rotation: The Rotational Spectra of Vinylsulfur Pentafluoride**

W. Orellana, S. L. Stephens, W. C. Pringle, P. Groner, Stewart A. Novick, and S. A. Cooke *J. Chem. Phys.* **149 (14)** 144304, (2018).

95. **Rotational Spectra of 4,4,4-Trifluorobutyric Acid and the 4, 4, 4-Trifluorobutyric Acid-Formic Acid Complex**
Y. J. Choi, *A. Trevino*, S. L. Stephens, S. A. Cooke, Stewart E. Novick, and Wei Lin *J. Mol. Spectroscopy* **344**, 65-70, (2018).

94. **A Study of the Conformational Isomerism of 1-Iodobutane by High Resolution Rotational Spectroscopy**
Eric A. Arsenault, Daniel A. Obenchain, Thomas A. Blake, S. A. Cooke, and Stewart E. Novick *J. Mol. Spectroscopy* **335**, 17-22, (2017).

93. **Microwave Spectra, Structure, and Ring Puckering Vibration of Octafluorocyclopentene**
B. E. Long, *Eric A. Arsenault*, Daniel A. Obenchain, Yoon Jeong Choi, Esther J. Ocola, Jaan Laane, Wallace C. Pringle, and S. A. Cooke. *J. Phys. Chem. A* **120(43)**, 8686-8690, (2016).

92. **A Study of 2-Iodobutane by Rotational Spectroscopy**
Eric A. Arsenault, Daniel A. Obenchain, *Yoon Jeong Choi*, Thomas A Blake, S. A. Cooke and Stewart E. Novick. *J. Phys. Chem. A*, **120(36)**, 7145-7151, (2016).

91. **Rotational Spectroscopy of 2H,3H-Perfluoropentane**
Chinh H. Duong, Daniel A. Obenchain, S. A. Cooke, and Stewart E. Novick. *J. Mol. Spectrosc.* **324**, 53-55, (2016).

90. **The Pure Rotational Spectrum of a Claisen Rearrangement Precursor Allyl Phenyl Ether Using CP-FTMW Spectroscopy**
Chinh H. Duong, Daniel A. Obenchain, S. A. Cooke, and Stewart E. Novick. *J. Mol. Spectrosc.* **324**, 1-5, (2016).

89. **A study of the monohydrate and dihydrate complexes of perfluoropropionic acid using chirped-pulse Fourier transform microwave (CP-FTMW) spectroscopy**
G. S. Grubbs II, D. A. Obenchain, *D. S. Frank*, S. E. Novick, S. A. Cooke, *A. Serrato III*, and Wei Lin. *J. Phys. Chem. A* **119(42)**, 10475-10480, (2015).

88. **Conformations of the semifluorinated n-alkane H-$(CF_2)_8$-H investigated using Fourier transform microwave spectroscopy and quantum chemical calculations**
Weixin Wu, B. E. Long, and S. A. Cooke. *J. Mol. Struct.* **1093**, 77-81, (2015).

87. **The Pure Rotational Spectrum of 1,1,2,2,3-Pentafluorocyclobutane and Applications of Singular Value Decomposition Signal Processing**
S. A. Cooke and A. J. Minei, *J. Mol. Spectrosc.* **306**, 37-41 (2014).

86. **Measurement of the J = 1 - 0 Pure Rotational Transition in Excited Vibrational States of $X^1\Sigma$ Thorium (II) Oxide, ThO**
B. E. Long, Stewart E. Novick and S. A. Cooke, *J. Mol. Spectrosc.* **302**, 1-2 (2014).

85. **Singular Value Decomposition Based Broadband Microwave Spectroscopy of 1H,2H-Perfluorocyclobutane**
S. A. Cooke and A. J. Minei, *J. Mol. Spectrosc.* **283**, 1-6 (2013). In the first quarter of 2013 this paper was listed as the number 1 "hottest" article from this Journal.

84. **Decoding Pure Rotational Molecular Spectra for Asymmetric Molecules**
S. A. Cooke and P. Ohring, *Journal of Spectroscopy.* **2013**, 10 pages (2013), http://dx.doi.org/10.1155/2013/698392

83. **Measurement and Analysis of the Pure Rotational Spectra of Tin Monochloride, SnCl, using Laser Ablation Equipped Chirped Pulse and Cavity Fourier Transform Microwave Spectroscopy**
G. S. Grubbs II, *Daniel J. Frohman*, Stewart E. Novick, S. A. Cooke. *J. Mol. Spectrosc.* **280**, 85-90 (2012).

82. **Bis-trifluoromethyl Effect: Doubled Transitions in the Rotational Spectra of Hexafluoroisobutene**
G. S. Grubbs II, Stewart E. Novick, W. C. Pringle, Jr., Jaan Laane, Esther J. Ocola and S. A. Cooke. *J. Phys. Chem. A* **116**, 8169-8175 (2012).

81. **Methyl Group Internal Rotation and the Choice of Hamiltonian for the Pure Rotational Spectrum of 1,1-Di fluoroacetone**
G. S. Grubbs II, P. Groner, Stewart E. Novick and S. A. Cooke. *J. Mol. Spectrosc.* **280**, 21-26 (2012).

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