FACULTY VITA

Name: Dr. Ngee-Sing Chong **Rank:** Professor

Educational Background:

- Welch Research Fellowship, Rice University, 1989-1990
- Ph.D. in Analytical Chemistry, University of Georgia, 1991
- M.S. in Analytical Chemistry, Iowa State University, 1986
- B.A. in Chemistry, Hanover College, 1981

Professional Experience:

- Professor, Middle Tennessee State University (2009-present)
- Associate Professor, Middle Tennessee State University (2004-2009)
- Faculty Research Fellow at Oak Ridge National Laboratory (Summers, 2004 & 2006)
- Summer Faculty Research Fellow at Air Force Research Laboratory (June-August, 2002)
- Assistant Professor, Middle Tennessee State University (1998-2004)
- Senior Chemist, Texas Commission on Environmental Quality (1994-1998)
- Director of Research, Cantrell Research Incorporated (1992-1994)
- Analytical Chemist, Toter Environmental Corporation (1990-1991)

Academic Responsibilities:

1. Teaching

- Introductory General Chemistry I with Lab - CHEM 1010
- Introductory Chemistry for Consumers -CHEM 1030
- General Chemistry I & II with Lab - CHEM 1110/1120
- Physical Science with Lab - PSCI 1030
- Instrumental Analysis with Lab– CHEM 4230/4231
- Forensic Instrumental Analysis with Lab – FSCH 4230/4231
- Detection of Chemical Pollutants with Lab - CHEM 4630/4631
- Intermediate Analytical Chemistry with Lab - CHEM 6230/6231
- Special Topics in Electron Microscopy- IMIC 4820/5820
- Chemical Informatics and Statistics – CHEM 6210
- Topics in Applied Chemistry: Atmospheric Chemistry - CHEM 6220/7710
- Topics in Analytical Chemistry: Molecular Spectroscopy - CHEM 6200/7220
- Environmental Chemistry-CHEM 4610/6610

2. Research

- Research advisor for four post-doctoral research associates, two doctoral (D.A.) chemistry education students, twenty-eight M.S. students, and more than ninety B.S. students in a variety of projects including the development of analytical methods for studying the extraction of cannabinoids from hemp, environmental toxicants in air, water, and soil samples, characterization of biomass-derived fuel and chemicals, analytical investigation of emissions from smoking or vaping products, fuels, and wildfires, forensic analysis of ignitable liquids, textile fibers, and odors of decomposition, as well as

improvement of methods based on GC-MS, LC-MS, FTIR, SEM, and X-ray microanalysis.
- Collaborated with researchers from University of Houston, University of Oklahoma, Ohio University, California State University-Fullerton, Universiti Sains Malaysia, Meharry Medical College, Tennessee State University, Northeastern University, Brown University, New York Medical College, SUNY-Upstate Medical University, Tennessee Health Department, Chattanooga and Memphis Air Pollution Control Bureaus, University of Memphis, National Chi Nan University, and Oak Ridge National Laboratory.
- Conducted research with funding from MTSU, chemical industries in Middle Tennessee, Tennessee Department of Environment and Conservation, Tennessee Department of Health, Department of Homeland Security, U.S. Department of Energy, National Science Foundation, National Institute of Justice, National Institute of Environmental Health Sciences, and Environmental Protection Agency.

3. Institutional/Public Service

- Director of MTSU Interdisciplinary Microanalysis and Imaging Center (MIMIC)
- Search committee chair for MIMIC technical manager, chemistry instrumentation support engineer, and tenure-track analytical/forensic faculty positions.
- Pre-dental Coordinator and Advisor for over 140 pre-dental and pre-dental hygiene students and advising them on the curriculum planning and application process to dental schools; evaluation and writing recommendation letters for MTSU pre-dental students.
- Served on the Tennessee Air Pollution Control Board (2004-2008) to address air quality issues and help formulate strategies for pollution control.
- Provide technical consulting or analytical services to industries via MTSU Office of Research Services and the University of Tennessee's Center for Industrial Services.
- Reviewed research grant proposals for the Tennessee Board of Regents, the National Research Council, the National Science Foundation, the Natural Sciences and Engineering Research Council of Canada, and the Environmental Protection Agency.
- Reviewed journal manuscripts for *Vibrational Spectroscopy, Analytica Chimica Acta, Chemistry Central Journal, Analytical and Bioanalytical Chemistry, ACS Journal of Environmental Science and Technology, International Journal of Environmental Research and Public Health, Materials, Atmosphere, Sustainability, Applied Sciences, Separations, Molecules,* and *Toxics*.
- Served as an external reviewer for faculty applications for tenure and promotion within and outside the United States.
- Advisor to the MTSU Delta Delta Sigma pre-dental club and the MTSU Biodiesel Club.

Research Interests:

Development of chromatographic, mass spectrometric, spectroscopic, and microscopic methods; discovery of disease biomarkers via exhaled breath analysis; indoor air and ambient air monitoring; analysis of potential toxicants smoking or vaping products such as traditional and electronic cigarettes, hookah, and bidi cigarettes; development of methods for degrading or deactivating harmful chemicals; sample preparation methods including solid phase extraction, solid phase microextraction, ultrasonication and microwave; forensic analysis of ignitable liquids, textile fibers, and post-mortem interval determination via tissue decomposition and odor characterization;

development of passive samplers for monitoring trace air pollutants; application of FTIR and GC-MS for studying atomospheric chemistry, wildfires, landfill emissions, and toxicant formation; electrochemical methods for synthesis, preconcentration, and corrosion studies.

Publications and Selected Abstracts:

1. D. N. B. Chandra Siri, S. L. Ng; N. S. Chong; P. J. Marriott; Y. F. Wong, "Evaluation of portable atmospheric-pressure solids analysis probe-quadrupole mass spectrometry and UPLC-MS for the rapid screening of illicit substances in human urine" *Journal of Chromatography A*, **2026**, 1770, 466720. https://doi.org/10.1016/j.chroma.2026.466720
2. X. Fu, A. Zhao, J. C. Nwanaji-Enwerem, N. S. Chong, D. Bartelli, C. Jia, "Organic chemical contamination of the indoor air in outpatient clinics: spatiotemporal variation and health risks", **2025**, *Int. J. Environ. Health Res.*, 1–13. https://doi.org/10.1080/09603123.2025.2576589
3. S. I. Onukwube, S. L. Ng, M. Zulkurnain, A. Patar, N. Yahaya, N. S. Chong, Y. F. Wong, "Magnetic polypyrrole-alginate microspheres derived from biogenic $CaCO_3$ from oyster shells for bisphenol A removal in aqueous environment: Kinetics and thermodynamic study", *Int. J. of Biol. Macromol.*, **2025**, 148192, ISSN 0141-8130. https://doi.org/10.1016/j.ijbiomac.2025.148192
4. W. Dong, N. S. Chong, Q. A. Thanni, P. B. Harrington, M. Zhang, "Analysis of oil-based ignitable liquid residues by GC–MS and DART–MS", *Forensic Chem.*, Vol. 46, **2025**, 100701, ISSN 2468-1709. https://doi.org/10.1016/j.forc.2025.100701
5. N. H. Hassan, N. S. Chong, T. L. Yoon, Y. F. Wong, "Identification and adulteration detection of Heterotrigona itama and Apis dorsata honey using differential scanning calorimetry and convolutional neural networks with data augmentation", *Food Chem.*, **2025**, 144398, ISSN 0308-8146. https://doi.org/10.1016/j.foodchem.2025.144398
6. S. Ramamoorthy, N. S. Chong, K. K. Hotha, "Strengthening extractable & leachable study submissions: best practices to avoid regulatory deficiencies", *Am. J. Anal. Chem.,* **2024**, 15(12), 368-394. https://doi.org10.4236/ajac.2024.1512025.
7. D. N. B. Chandra Siri, S. Y. Goh, N. S. Chong, P. J. Marriott, Y. F. Wong, "Rapid Determination of Methamphetamine, Methylenedioxymethamphetamine, Methadone, Ketamine, Cocaine, and New Psychoactive Substances in Urine Samples Using Comprehensive Two-Dimensional Gas Chromatography", *Metabolites* **2024**, *14*, 643. https://doi.org/10.3390/metabo14110643S.
8. S. Perna, N. S. Chong, M. Zhang, "Recovery and detection of ignitable liquid residues from the substrates by solid phase microextraction – direct analysis in real time mass spectrometry" *Forensic Chemistry*, 41, **2024**, 100611. https://doi.org/10.1016/j.forc.2024.100611.
9. N. S. Chong, I. Nwobodo, M. Strait, D. Cook, S. Abdulramoni, B. G. Ooi, "Preparation and Characterization of Shell-Based CaO Catalysts for Ultrasonication-Assisted Production of Biodiesel to Reduce Toxicants in Diesel Generator Emissions", *Energies,* **2023**, *16*, 5408. https://doi.org/10.3390/en16145408
10. J. Hwang, N. S. Chong, M. Zhang, R. J. Agnew, C. Xu, Z. Li, X. Xu, "Face-to-face with scorching wildfire: potential toxicant exposure and the health risks of smoke for wildland firefighters at the wildland-urban interface", *Lancet Regional Health - Americas*, 21, **2023**, 100482. https://doi.org/10.1016/j.lana.2023.100482.
11. S. Perna, B. M. Dedicatoria, N. S. Chong, M. Zhang, "GC/MS and DART-MS as complementary methods for investigating the effects of weathering on chemical profiles of ignitable liquids: A case study for paint thinner" *Forensic Chemistry*, 33, **2023**, 100478. https://doi.org/10.1016/j.forc.2023.100478.
12. V.L. Benefield, S. Perna, S. Pham, N. S. Chong, Z. Li, M. Zhang. "Evaluation of Mass Spectrometric Methods for Screening Polycyclic Aromatic Hydrocarbons in the Particulate Phase of Wildfire/Biomass Smoke" *Fire Technol*. **2022**; https://rdcu.be/cYq2O

13. N. N. Hassan, F. Cacciola, N. S. Chong, K. Arena, P. J. Marriott, Y. F. Wong, "An updated review of extraction and liquid chromatography techniques for analysis of phenolic compounds in honey" *J. Food Compost. Anal.*, 114, **2022**, 104751. https://doi.org/10.1016/j.jfca.2022.104751
14. M. Poplawska, D. Dutta, M. Jayaram, N. S. Chong, M. Salifu, S. H. Lim. "Genes modulating intestinal permeability and microbial community are dysregulated in sickle cell disease" *Annals of Hematology* 101(5), 1009-1013, **2022**. DOI: 10.1007/s00277-022-04794-y
15. M. Poplawska, D. Dutta, M. Jayaram, M. Salifu, N. S. Chong, S. H. Lim. "Intestinal pathophysiological abnormalities in steady state and after vaso-occlusive crisis in murine sickle cell disease" *Br. J. Haematol.* **2021** https://doi.org/10.1111/bjh.17889
16. N. S. Chong, F. U. Okejiri, S. Abdulramoni, S. Perna, B.G. Ooi. Evaluation of Shell-Derived Calcium Oxide Catalysts for the Production of Biodiesel Esters from Cooking Oils *Acad. J. Chem.6 (1)20-27,* **2021.** DOI: 10.32861/ajc.61.20.27
17. D. Dutta, B. G. Ooi, N. S. Chong. Major harmful effects of chemicals found in e-cigarette emissions. In *E-Cigarettes: Perspectives, Regulation and Health Effects*; Nova Science Publishers, Hauppauge, NY, USA. **2020**. https://novapublishers.com/shop/e-cigarettes-perspectives-regulation-and-health-effects/
18. L. Jian, J. Frazier, V. Benefield, N. S. Chong, M. Zhang "Forensic fiber analysis by thermal desorption/pyrolysis-direct analysis in real time-mass spectrometry" *ACS Anal. Chem. 92, 1925-1933,* **2020.** DOI:10.1021/acs.analchem.9b04167
19. N. S. Chong, D. Dutta, B.G. Ooi. Formation of melamine-derived particles in aqueous and biological matrices. In *An Introduction to Melamine*; A. Harris Ed.; Nova Science Publishers, Hauppauge, NY, USA. **2020**. ISBN:978-1-53617-136-5, https://novapublishers.com/shop/an-introduction-to-melamine/
20. N. S. Chong, S. Abdulramoni, D. Patterson, H. Brown "Releases of fire-derived contaminants from polymer pipes made of polyvinyl chloride" *Toxics*, 7(4), 57, **2019**. https://doi.org/10.3390/toxics7040057.
21. B. G. Ooi, D. Dutta, K. Kazipeta, N. S. Chong "Influence of the e-cigarette emission profile by the ratio of glycerol to propylene glycol in e-liquid composition" *ACS Omega, 4*(8), 13338-13348, **2019**. DOI: 10.1021/acsomega.9b01504.
22. O. A.Oladipupo, D. Dutta, N.S. Chong "Analysis of chemical constituents in mainstream bidi smoke" *BMC Chemistry,* 13, 93, **2019**. DOI:10.1186/s13065-019-0614-7.
23. D. Dutta, N. S. Chong, S. H. Lim "Endogenous volatile organic compounds in acute myeloid leukemia: Origins and clinical applications" *Journal of Breath Research*, **2018**, 12, 034002. https://doi.org/10.1088/1752-7163/aab108.
24. D. Dutta, S. T. Keene, N. S. Chong "Determination of decomposition-related volatile organic compounds from different pig tissues for environmental and forensic applications"; Frontiers Journal for NOBCChE's 45th Annual Conference Proceedings. DOI: 10.3389/conf.fchem.2018.01.00008
25. P. Villa, L. Vera, S. Wylie, S. Wilson, A. Septoff, C. Jia, N. S. Chong, C. Luong "Hazards in the air: Relating reported illnesses to air pollutants detected near oil and gas operations in and around Karnes County, Texas" Earthworks Report, 2017, 96 pages.
26. C. Jia, J. Holt, L. Smith, N. S. Chong. "Reducing Exposure to Airborne Chemical Toxics (REACT): Community-Scale Air Monitoring in Memphis", National Ambient Air Monitoring Conference in St. Louis, Missouri, August 8-11, **2016**.
27. Kuklewicz, K; Milstead, J.; Chong, N.S.; Ooi, B.G. A highly sensitive gas chromatography-mass spectrometry method for the analysis of biogenic terpenes. https://doi.org/10.1130/abs/2022AM-380306

28. N. S. Chong, K. Donthula, R. Davies, W. Ilsley, B. G. Ooi. "Significance of chemical enhancement effects in surface-enhanced Raman scattering signals of aniline and aminobiphenyl isomers"; *Vibrational Spectroscopy*, **2015**, 81, 22-31. https://www.sciencedirect.com/science/article/abs/pii/S0924203115300126
29. R. A. Davies, N. S. Chong, B. G. Ooi. "Chemical Enhancement of the Surface Enhanced Raman Scattering Signals of Anilines via Their Ortho-Substituents" *Optics and Photonics Journal*, **2013**, 3 (5A), 13-23. https://www.scirp.org/pdf/opj_2013091810063722.pdf
30. N. S. Chong, K. Smith, S. Setti, B. G. Ooi. "Application of gold and silver colloidal nanoparticles for the surface-enhanced Raman spectrometric analysis of melamine and 4-aminobiphenyl"; *International Journal of Environmental Technology and Management* **2013**, 16 (1/2), 3-20. DOI 10.1504/IJETM.2013.050681
31. K. A. Smith, N. S. Chong, K. Donthula, B. G. Ooi. "Influence of the structural characteristics of silver and gold nanoparticles on the surface-enhancement factors of the Raman signals from aromatic amines"; *NanoFormulation Conference Proceedings* **2012**, 121-132.
32. J. Boachie, L. Bolin, N. S. Chong, and B.G. Ooi; "Quantitative determination of oxygenate additives in gasoline and diesel fuels by infrared spectroscopy" Preprint of 239th ACS National Meeting, March 21-25, **2010**, San Francisco, CA.
33. L. Bolin, F. Ahmed, P. Schine, B.G. Ooi, and N. S. Chong; "Effects of oxygenate additives in reducing air toxics from the exhaust emissions of generators fueled by diesel and gasoline" Preprint of 239th ACS National Meeting, March 21-25, **2010**, San Francisco, CA.
34. B. G. Ooi, L. Zhao, and N. S. Chong. "A Versatile Substrate Coated with Silver Nanoparticles for Surface-Enhanced Vibrational Spectroscopy" *Am. Lab.* **2009**, 41(7), 36-38.
35. N. S. Chong, B. M. Naah, C. Liang, "Synthesis and characterization of functionalized mesoporous carbon acid catalyst for biodiesel production" Preprints of Symposia-American Chemical Society, Division of Fuel Chemistry **2009**, 54(1), 171-172.
36. N. S. Chong, N.T. Sun, H.Y. Hsu, T.L. Chou and H.Y. Tang. "Electrocrystallization and Characterization of Polymorphic Forms of Barium Metaplumbate"; Crystal Growth & Design, **2008**, 8(5), 1779-1782. https://pubs.acs.org/doi/10.1021/cg800009b
37. X. Liang, N. S. Chong, X. Z. Ren, Z. K. Luo, "Analytical Applications of Infrared Transparent Thin Films with Polyorganosilane Coatings"; Xiyou Jinshu Cailiao Yu Gongcheng **2008**, 37(Suppl. 2), 726-729.
38. H. Y. Lin, Y. P. Sun, B. J. Weng, C. T. Yang, N. T. Suen, K. H. Liao, Y. C. Huang, J. Y. Ho, N. S. Chong, and H. Y. Tang, "Factors influencing the structure of electrochemically prepared α-MnO_2 and γ-MnO_2 phases" Electrochimica Acta, **2007**, 52(23), 6548-6553 https://doi.org/10.1016/j.electacta.2007.04.095
39. N. S. Chong, S. Ramamoorthy, C. Ashford, A. Buerstetta, K. Donthula, B. G. Ooi, "Analysis of monoglycerides and diglycerides in biodiesel fuel by GC-MS and FTIR" Abstracts of Papers, 233rd ACS National Meeting, Chicago, IL, United States, March 25-29, 2007 (2007), CELL-080.
40. C. Liang, S. Dai, N. S. Chong, V. S. Y. Lin, "Investigation of functionalized mesoporous carbons as heterogeneous catalyst for biodiesel production" Abstracts of Papers, 233rd ACS National Meeting, Chicago, IL, United States, March 25-29, 2007, CATL-005.

41. K. Banks-Word, J. M. Iriarte-Gross, K. E. Smith, and N. S. Chong "Dating of prehistoric bones using a fluoride ion selective electrode" Abstracts of Papers, 232nd ACS National Meeting, San Francisco, CA, United States, Sept. 10-14, 2006, CHED-267.
42. T. Augustine, N. S. Chong, and L. Chong "Zeolite catalysis of various seed oils for the production of biodiesel and chemicals" Abstracts, 38th Middle Atlantic Regional Meeting of the American Chemical Society, Hershey, PA, United States, June 4-7, 2006, MRM-433.
43. L. E. E. Wanamaker, T. V. Johnston, N. S. Chong, and B. G. Ooi "Rapid method of detecting flavonoids in wine using Raman spectroscopy" Abstracts of Papers, 231st ACS National Meeting, Atlanta, GA, United States, March 26-30, 2006, AGFD-071.
44. X. Liang, Q. L. Zhang, F. Wang, N. S. Chong, and H. Y. Tang "Low temperature preparation of hollandite α-MnO_2" Daxue Xuebao, Ligongban (2005), 22(4), 364-367.
45. N. S. Chong, O. Oladipupo, "Mass Spectrometric Determination of Carbonyl Compounds in Mainstream Tobacco Smoke", Proceedings of 53rd American Society of Mass Spectrometry Meeting, MP 030 (2005).
46. N. S. Chong, O. Oladipupo, V. Hunter, and B. G. Ooi "Application of AMDIS Mass Spectral Deconvolution Algorithm for the Characterization of Cigarette Smoke" Proceedings of 52nd ASMS Conference on Mass Spectrometry and Allied Topics, Nashville, TN, 2004.
47. B. G. Ooi, A. Mulisa, H. Y. Kim, and N. S. Chong "Methods Development for the Detection of Trace Metabolites from the Biodegradation of Polycyclic Aromatic Hydrocarbons by Yeasts", Journal of the Tennessee Academy of Sciences, 2003, 78 (3), 65-75.
48. M. Y. Liao, J. M. Lin, J. H. Wang, C. T. Yang, T. L. Chou, B. H. Mok, N. S. Chong, and H.Y. Tang, "Electrochemical Synthesis of α-MnO_2 Octahedral Molecular Sieve" Electrochemistry Communications, 2003, 5 (4), 312-316. https://doi.org/10.1016/S1388-2481(03)00054-7
49. N. S. Chong, K. Sivaramakrishnana, M. Wells, and K. Jones, "Characterization of Inhalable Particulate Matter in Ambient Air by Scanning Ambient Air and Energy-Dispersive X-ray Analysis"; Electronic Journal of Environmental, Agricultural, and Food Chemistry, 1 (3), 2003.
50. B. G. Ooi, A. Mulisa, H. Y. Kim, and N. S. Chong "Methods Development for the Detection of Trace Metabolites from the Biodegradation of Polycyclic Aromatic Hydrocarbons by Yeasts", Journal of the Tennessee Academy of Sciences, 2003, 78 (3), 65-75.
51. N. S. Chong and C. L. Cantrell, United States Patent No. 5,186,722 (1993) "Hydrocarbon-based Fuels from Biomass".
52. N. S. Chong, M. L. Norton, and J. L. Anderson, Analytical Chemistry, 64, 1030 (1992). "Electrodeposition of Metallic Films on Aluminum Specimen Supports for Characterization by Scanning Electron Microscopy and Energy-Dispersive X-ray Analysis" https://pubs.acs.org/doi/abs/10.1021/ac00033a012
53. N. S. Chong, M. L. Norton, and J. L. Anderson, Journal of Electrochemical Society, 138, 1263 (1991). "Application of Polypyrrole Film Substrates for Characterization of Metallic Electrodeposits by Transmission Electron Microscopy and Energy-Dispersive X-ray Analysis" https://iopscience.iop.org/article/10.1149/1.2085770

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55. M. L. Norton, N. Nevins, H. Y. Tang, N. S. Chong, and J. Scowyra, Materials Research Bulletin, 25, 257 (1990) "Chemical Vapor Transport of Nb_3Sn". https://doi.org/10.1016/0025-5408(90)90053-5
56. N. S. Chong, M. L. Norton, and J. L. Anderson, Analytical Chemistry, 62, 1043 (1990). "Multielement Trace Metal Determination by Electrodeposition, Scanning Electron Microscopy, X-ray Fluorescence, and Inductively Coupled Plasma-Mass Spectrometry" https://pubs.acs.org/doi/abs/10.1021/ac00209a015
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58. N. S. Chong and H. Y. Tang, Instruments Today, 47, 81, (1988). "A Review of Principles, Instrumentation, and Applications for Inductively Coupled Plasma-Mass Spectrometry"
59. N. S. Chong and R. S. Houk, Applied Spectroscopy, 41, 66-74 (1987). "Inductively Coupled Plasma-Mass Spectrometry for Elemental Analysis and Isotope Ratio Determinations in Individual Organic Compounds Separated by Gas Chromatography"

Presentations:

1. "PFAS Fate and Transport Driven by Human Activity across Environmental Matrices. Waste Management Symposia, Phoenix, AZ (2026)
2. "Chemical Leachates and Thermally Induced Emissions of Toxicants in Recycled Tire Materials", Pittsburgh Conference, San Antonio, TX (2026)
3. "Study of the High-Temperature Plasma Degradation of PFAS Compounds", Pittsburgh Conference, San Antonio, TX (2026)
4. "Comparison of Fire-Derived Contaminants from Polymer Pipes Made of Polyvinyl Chloride, Polypropylene, and Polyethylene", Pittsburgh Conference, San Antonio, TX (2026)
5. "Identification of Ignitable Liquids in the Post-Fire Carpet Debris by Complementary GC-MS and DART-MS Methods", American Academy of Forensic Science 78th Annual Conference, New Orleans, LA (2026)
6. "Per-and Polyfluoroalkyl Substances (PFAS) contamination in the Tennessee River Watershed"' Society of Environmental Toxicology and Chemistry North America 46th Annual Meeting, Portland, OR (2025)
7. "Levels of Per- and Polyfluoroalkyl Substances (PFAS) in the Elk River Watershed, Tennessee", American Chemical Society 76th Southeastern and 81st Southwestern Regional Meeting, Orlando, FL (2025)
8. "Advancing Extraction and Separation Techniques for Food and Environmental Analysis", SERMACS/SWRM, Orlando, FL (2025)
9. "Destruction of Polyfluoroalkyl Substances via Formation of Fluoride By-products", Tennessee Academy of Science Meeting, Knoxville, TN (2025)
10. "Application of GC-MS and IR for Identifying Ignitable Liquids in Fire Debris in Headspace and Solvent Extraction Modes", FACSS-SciX, Covington, KY (2025)

11. “Chemical Profiling of Landfill Contaminants in Air, Water, and Soil Samples”, NSF S-STEM, San Diego, CA (2025)
12. “Effects of Ammonium Phosphate-Based Fire Suppressants on Biomass Combustion Characteristics and Emission Profiles”, Pittcon, Boston, MA (2025)
13. “Comparison of chemical leaching profiles and thermally induced emissions of recycled tire materials and cryo-milled tire tread (CMTT) samples”, Tire Emissions Research Conference Munich, Germany (2024)
14. “Ammonia emissions from burning biomass materials with and without the application of fire suppressants”, SERMACS, Atlanta, GA (2024)
15. “Analytical approach for the fate and transport study of landfill contaminants”, SERMACS, Atlanta, GA (2024)
16. “Detection of ignitable liquid residues using solid-phase microextraction direct analysis in real-time mass spectrometry (SPME-DART-MS)”, AAFS Conference, Denver, CO (2024)
17. “Evaluation of Solvent Choices for Extracting Cannabinoids Using Microwave and Ultrasonication”, SciX Conference, Sparks, NV, (2023)
18. “Ignitable Liquids Analysis by DART-MS and Chemometrics”, SciX Conference, Sparks, NV, (2023)
19. “Optimization of Conditions Extracting Cannabinoids Using Microwave and Ultrasonication” PITTCON, Philadelphia, PA, (2023)
20. “Optimization of conditions for extracting cannabinoids using microwave and ultrasonication” The 132nd Meeting of the Tennessee Academy of Science, Tennessee State University, Nashville, TN (2023)
21. “Identification of Ignitable Liquids by Gas Chromatography-Mass Spectrometry and Direct Analysis in Real-Time-Mass Spectrometry via Their Marker Compounds,” ASMS 2023 Conference. Houston, TX. (2023)
22. “Comparative Evaluation of Ignitable Liquid Residue Detection by GC/MS and DART-MS” NIJ Forensic R&D Symposium PITTCON, Philadelphia, PA, (2023)
23. “Analysis of Less Volatile Components in Ignitable Liquids by Direct Analysis in Real-Time Mass Spectrometry and Versatile Sampling Strategy” NIJ Forensic Science R&D Symposium Poster Session, Orlando, FL, (2023)
24. “The Unique Capability of DART-MS for the Detection of Less Volatile Components in Ignitable Liquids” AAFS Conference, Orlando, FL, (2023)
25. “Study of hydrogen-bonded complexes containing melamine by Raman microscopy, scanning electron microscopy with X-ray microanalysis, and X-ray diffraction”, 73rd Southeastern Regional Meeting of the American Chemical Society, SERMACS 2022, San Juan, Puerto Rico, October 19-22 (2022)
26. “Evaluating Toxicant Exposure at the Wildland-Urban Interface Fires”, National Fire Protection Association Conference in Boston, Massachusetts, June 6-8, 2022.
27. “Comparison of Microwave and Ultrasonication Approaches for Phytochemical Extraction of Mint and Hemp Oils” Middle Atlantic Regional Meeting of the American Chemical Society, Ewing, NJ, United States (2022)
28. “Influence of spectral acquisition conditions in discriminating visually similar blue and red dyes by Raman spectroscopy and surface-enhanced Raman scattering” American Chemical Society Spring National Meeting, San Diego, CA, United States (2022)
29. “Multivariate Factor Analysis to Study the Variation of the GC/MS Profiles of Ignitable Liquids During the Weathering Process” SciX Conference, Covington, KY, (2022)

30. "A Comparison of Weathering Profiles of Ignitable Liquids by Gas Chromatography/Mass Spectrometry (GC/MS) and Direct Analysis in Real-Time Mass Spectrometry (DART-MS)" AAFS Conference, Seattle, WA, (2022)
31. "Comparison of Weathering Profiles of Ignitable Liquids by Gas Chromatography/Mass Spectrometry (GC/MS) and Direct Analysis in Real-Time Mass Spectrometry (DART-MS)" NIJ Forensic Science R&D Symposium, Virtual, (2022)
32. "Comparison of Weathering Profiles of Ignitable Liquids by Gas Chromatography-Mass Spectrometry and Direct Analysis in Real-Time Mass Spectrometry" The American Society for Mass Spectrometry Annual Conference, Philadelphia, PA, (2021)
33. "GC/MS Analysis of Volatile Organic Compounds (VOCs) Emitted During Wildfires by Using Cryogenic and Sorbent Pre-concentration", Southeastern Regional Meeting of the American Chemical Society, Birmingham, AL, United States, (2021)
34. "Chemical Profiles of Weathered Ignitable Fluids Based on GC/MS, Raman, and Infrared Spectroscopic Analysis", Southeastern Regional Meeting of the American Chemical Society, Birmingham, AL, United States, (2021)
35. "Use of Weathered Hydrocarbon Data from FTIR, Raman, and GC/MS Analysis to Identify Different Ignitable Liquids and Estimate Their Degree of Weathering" Southeast Regional Meeting of American Chemical Society (SERMACS), Birmingham, AL, (2021)
36. "Enhancing the analytical confidence of dye identification using Raman spectroscopy, surface-enhanced Raman scattering (SERS), and mass spectrometry (MS) with microwave-assisted analyte extraction" 131st Meeting of the Tennessee Academy of Science Meeting, November 6, 2021, Tennessee Technological University
37. "Determination of Carboxylic Acids and Levoglucosan in the Particulate Phase of Smoke by Mass Spectrometric Methods", ACS Virtual Meeting (2021)
38. "Rapid quantification of polycyclic aromatic hydrocarbons in the particulate matter of wildland fire smoke by direct analysis in real-time mass spectrometry" , ACS Virtual Meeting (2021)
39. "Forensic Analysis of Textile Dyes and Fiber Composition by Raman Microscopy", Pittcon Virtual Meeting (2021)
40. "Production of Biodiesel Using Shell-Derived CaO", Pittcon Virtual Meeting (2021)
41. "Forensic Textile Dye Analysis by Thermal Desorption Direct Analysis in Real-Time Mass Spectrometry and Raman Microscopy", American Academy of Forensic Sciences Virtual Meeting, (2021)
42. "Extraction and Characterization of Valuable Chemicals from Botanical Sources", Pittcon, Chicago, IL, (2020).
43. "Devising a Multi-spectral Scheme for the Analysis of Color Powders", Pittcon, Chicago, IL, (2020).
44. "Comparison of Ultrasonication and Conventional Heating Methods for Biodiesel Additive Production Using Calcium Oxide Catalysts Obtained from Calcined Shells of Oyster", Bioenergy Conference, Nashville, TN, (2019).
45. "2019", Gulf Coast Conference, Galveston, TX, (2019)
46. "Application of Mass Spectrometry for Studying the Degradation of Amino Acids and Volatile Organic Compounds by Chlorine Dioxide", American Society of Mass Spectrometry Annual Meeting, Atlanta, GA (2019).
47. "Chlorophyll Removal in Cannabinoid Extracts Using Chestnut-Derived Activated Carbon", Central Magnet School Presentation, Murfreesboro, TN (2019)

48. "Analysis of Vapor and Particulate Phases in Electronic Cigarette Emissions", Pittcon, Philadelphia, PA, (2019)
49. "Spectroscopic Characterization of Dyes in Color Powders", Pittcon, Philadelphia, PA, (2019)
50. "Analysis of Volatile Organic Compounds in the Emissions of JUUL Electronic cigarette", 51st annual Southeastern Undergraduate Research Conference, Martin, TN (2019).
51. "Analysis of Aerosol Phase in the Emissions of JUUL Electronic cigarette", 51st annual Southeastern Undergraduate Research Conference, Martin, TN (2019)
52. "Determination of Decomposition-Related Volatile Organic Compounds from Different Pig Tissues for Environmental and Forensic Applications", NOBCChE 45th Annual Conference, Orlando, FL (2018).
53. "Analytical Chemistry Applications in Environmental and Forensic Chemistry", Central Magnate School Seminar, Murfreesboro, TN (2018).
54. "Improving the Analytical Sensitivity and Overcoming Chromatographic Coelution in the TO-15 GC-MS Method of Measuring Air Toxics" Gulf Coast Conference, Galveston, TX, (2017).
55. "Size-dependent characterization of particulate matter in waterpipe tobacco smoke", 44th Annual Meeting, National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, Minneapolis, MN. (2017).
56. "Biodiesel Production Using Ultrasonic Irradiation and Its Fuel Performance", ACS National Meeting & Exposition, Washington, DC, (2017)
57. "Degradation of Selected Hazardous Organic Compounds by Chlorine Dioxide and Ozone", ACS National Meeting & Exposition, Washington, DC (2017).
58. "In-situ Derivatization of Polar Terpenes on A Modified Sorbent Tube Followed by Thermal Desorption Analysis via Gas Chromatography-Mass Spectrometry (GC-MS)" ACS National Meeting & Exposition, Washington, DC (2017).
59. Kuklewicz, K; Milstead, J.; Chong, N.S.; Ooi, B.G. A highly sensitive gas chromatography-mass spectrometry method for the analysis of biogenic terpenes. Geological Society of America Annual Meeting in Denver, Colorado, USA. (2016)
60. "Degradation of Environmental Contaminants Using Chlorine Dioxide", Pittcon, Atlanta, GA (2016).
61. "Techniques for Analyzing Volatile Organic Compounds Emitted During Aerobic Decomposition of Pig Carcasses and Swine Tissues", Pittcon, Atlanta, GA (2016).
62. "Comparison of Emissions from Power Generators Fueled with Diesel and Biodiesel with Various Additives", Pittcon, Atlanta, GA (2016).
63. "Methods Development for Sampling and Analysis of Biogenic Volatile Organic Compounds Released from Plants", Pittcon, Atlanta, GA (2016).
64. "Terpene Emissions from Cedar, Redbud, and Pine Trees", TSLAMP, Knoxville, TN (2016).
65. "The Memphis Air Toxics Study", National Ambient Air Monitoring Conference. St. Louis, MO (2016).
66. "Reducing Exposure to Airborne Chemical Toxics (REACT): Community-Scale Air Monitoring in Memphis", National Air Toxics Monitoring and Data Analysis Workshop. Research Triangle Park, NC (2015).
67. "Air toxics in Memphis: Levels, sources, and health risks", The 9th ISHVAC and 3rd COBEE joint conference. Tianjin, China (2015).
68. "Destruction of toxic chemicals by chlorine", TAS, Murfreesboro, TN (2015).
69. "Ambient Air Monitoring and Risk Assessment of Air Toxics in Memphis, TN", EPA Region IV Air Monitoring Meeting, Chattanooga, TN (2015)

70. "Studies of the Composition of Electronic Cigarette Emissions in Vapor and Particulate Phases", TAS, Murfreesboro, TN (2015).
71. "Analysis of Air Pollutants from Fracking Sites in Karnes City, TX", SERMACS, Memphis, TN (2015).
72. "Spectroscopic Comparison of Signals of Aniline Derivatives from Surface-Enhanced Raman Scattering and Infrared Techniques", Pittcon, New Orleans, LA (2015).
73. "Characterization of the Emissions of Air Toxics from Biomass-Derived Additives for Diesel and Biodiesel Fuels by GC-MS and Extractive FTIR Spectrometry", Pittcon, New Orleans, LA (2015).
74. "Comparative Studies of Electronic Cigarette Emissions", SERMACS, Memphis, TN (2015).
75. "Analysis of Terpene Emissions from Cedar and Redbud", TAS, Murfreesboro, TN (2015).
76. "Analysis of Ambient Air Pollution at Natural Gas Production Facilities by GC/MS and FTIR", 67th Southeast/71st Southwest Joint Regional Meeting of the American Chemical Society, Memphis, TN (2015).
77. "Studies of Electronic Cigarette Emissions and Assessing the Smokers' Exposure to Harmful Chemicals", 67th Southeast/71st Southwest Joint Regional Meeting of the American Chemical Society, Memphis, TN (2015).
78. "Research Highlights in Atmospheric Chemistry and Emission Testing", MTSU CBAS Research Exchange, Murfreesboro, TN (2015).
79. "Air quality monitoring in Memphis, TN and Karnes City, TX using EPA TO-15 method", Department of Chemistry, University of the South, Sewanee, TN (2015)
80. "Analysis of Volatile Organic Compounds in Ambient Air from Biogenic Sources Using Gas Chromatography–Mass Spectrometry", Summer Research Celebration, MTSU, Murfreesboro, TN (2015).
81. "Ambient Air Monitoring in Memphis and Surrounding Areas", 66th Southeast Regional Meeting of the American Chemical Society, Nashville, TN (2014).
82. "Production and Emission Testing of Biodiesel Samples", 66th Southeast Regional Meeting of the American Chemical Society, Nashville, TN (2014).
83. "Analysis of Volatile Organic Compounds Emitted During Aerobic Decomposition of Pig Carcasses and Swine Tissues", 66th Southeast Regional Meeting of the American Chemical Society, Nashville, TN (2014).
84. "FTIR and GC-MS Analysis of the Oxidizing Capacity of Chlorine Dioxide", 66th Southeast Regional Meeting of the American Chemical Society, Nashville, TN (2014).
85. "The application of optical and mass spectroscopy in research related to biofuels, forensics, and biotransformation of toxicants", University of Memphis Departmental Seminar, Memphis, TN (2013)
86. "Development of a GC-MS Method for the Analysis of Ambient Air Toxics from Industries and Biogenic Terpenes", 65th Southeast Regional Meeting of the American Chemical Society, Atlanta, GA (2013).
87. "Characterization of the Reaction Products of Chlorine Dioxide and Volatile Organic Compounds by Infrared Spectrometry and GC-MS", 245th ACS National Meeting & Exposition, New Orleans, LA (2013).
88. "Spectral Evaluation of Aniline and Anilines with Various Substituents by Surface Enhanced Raman Spectroscopy (SERS)", 245th ACS National Meeting & Exposition, New Orleans, LA (2013).

89. "Comparison of Methods for the Quantitative Analysis of Biodiesel Composition", 64th Southeast Regional Meeting of the American Chemical Society, Raleigh, NC (2012).
90. "Application of Surface-Enhanced Infrared and Raman Spectroscopic Analysis of Aromatic Amines", 243rd ACS National Meeting & Exposition, San Diego, CA (2012).
91. "Use of pyrolysis-GC/MS in the analysis of illegal products containing drugs of abuse", 243rd ACS National Meeting & Exposition, San Diego, CA (2012).
92. "Probing the Adsorption Characteristics of Aminobiphenyl Isomers Using Surface-Enhanced Raman Spectroscopy", 241st ACS National Meeting, Anaheim, CA (2011).
93. "Preparation of Sol-Gel Substrates for Surface Enhanced Raman Scattering Analysis of Melamine with Computational Confirmation of Spectral Vibrational Frequencies", 241st ACS National Meeting & Exposition, Anaheim, CA (2011).
94. "Development of an Analytical Method Based on Gas Chromatography-Mass Spectrometry (GC/MS) for Characterizing Air Toxicants in Exhaust Emissions", 241st ACS National Meeting & Exposition, Anaheim, CA (2011).
95. "Elucidating the Formation Characteristics of Melamine-Cyanuric Acid Complex", Microscopy and Microanalysis Meeting, Richmond, VA (2011).
96. "Determination Of Melamine And Cyanuric Acid in Contaminated Pet Food and Milk Products Using Surface-Enhanced Raman Scattering" Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) Meeting, Raleigh, NC (2010)
97. "Effects of oxygenate additives in reducing air toxics from the exhaust emissions of generators fueled by diesel and gasoline", 239th ACS National Meeting, San Francisco, CA (2010).
98. "Quantitative determination of oxygenate additives in gasoline and diesel fuels by infrared spectroscopy", 239th ACS National Meeting, San Francisco, CA (2010).
99. "Application of networking technology in remote access of instrumentation for teaching analytical chemistry", 239th ACS National Meeting, San Francisco, CA (2010).
100. "An Integrated Approach for the Production and Evaluation of Biodiesel Fuels", 61st Southeast Regional Meeting of the American Chemical Society, San Juan, Puerto Rico, (2009).
101. "Comparative Evaluation of Exhaust Emissions from an Electric Power Generator Fueled by Petrodiesel and Biodiesel Blends", 61st Southeast Regional Meeting of the American Chemical Society, San Juan, Puerto Rico (2009).22
102. "Synthesis and Characterization of Functionalized Mesoporous Carbon Acid Catalyst for Biodiesel Production", 237th ACS National Meeting, Salt Lake City, UT (2009).
103. "Studies of Yeast Strains for Bioethanol Production and the Emission Characteristics of Biomass-Derived Fuel Additives", 236th ACS National Meeting, Philadelphia, PA (2008).
104. "Probing the Emission Profile of Volatile Organic Compounds from the Combustion of Biofuel-Blended Gasoline in a Generator Engine", 60th Southeast Regional Meeting of the American Chemical Society, Nashville, TN (2008).
105. "Analysis of Volatile Organic Compounds by Sorbent Tube Preconcentration Followed by Extractive Infrared Spectrometry", 60th Southeast Regional Meeting of the American Chemical Society, Nashville, TN (2008).
106. "Ion-Selective Electrode Technique to Radioisotopic Methods in Dating Archaeological Specimens", 60th Southeast Regional Meeting of the American Chemical Society, Nashville, TN, (2008).
107. "Trace Gas Analysis via Sorbent Tube Preconcentration of Analytes Followed by Extractive Infrared Spectrometry and Gas Chromatography with Cryofocusing", Pittcon, Orlando, FL, (2008).

108. "Evaluation of Silver-Coated Substrates for Improving Surface-Enhanced Raman Scattering Signals", Pittcon, Orlando, FL (2008).
109. "Development of Surface-Enhanced Raman Scattering Methods for the Analysis of Active Pharmaceutical Ingredients" 117th Tennessee Academy of Science Meeting, Gallatin, TN (2007).
110. "Analysis of Gaseous Samples with Sorbent Tube Preconcentration of Analytes Followed by Infrared Spectrometry and Gas Chromatography" 117th Tennessee Academy of Science Meeting, Gallatin, TN (2007).
111. "Methods Development for the Determination of Fluoride in Archaeological Analysis of Faunal Remains" 117th Tennessee Academy of Science Meeting, Gallatin, TN (2007).
112. "Analysis of Gaseous Samples with Sorbent Tube Preconcentration of Analytes Followed by Infrared Spectrometry and Gas Chromatography" Conference of the Federation of Analytical Chemistry and Spectroscopy Societies, Memphis, TN (2007)
113. "Advantages of Heterogeneous Catalysts for Biodiesel Production" 2007 Green Chemistry and Engineering Conference, Washington, DC (June 2007)
114. "Investigation of Functionalized Mesoporous Carbons as Heterogeneous Catalyst for Biodiesel Production", 233rd ACS National Meeting, Chicago, IL, (2007).
115. "Analysis of Monoglycerides and Diglycerides in Biodiesel Fuel by GC-MS and FTIR", 233rd ACS National Meeting, Chicago, IL (2007).
116. "Characterization of Flavonoid Compounds by Raman and Infrared Spectroscopy", Pittcon, Chicago, IL (2007)
117. "Analysis of Volatile Compounds by Extractive Infrared Spectrometry of Sorbent Tube Samples", Pittcon, Chicago, IL (2007)
118. "Zeolite Catalysis of Various Seed Oils for the Production of Biodiesel and Chemicals", 38th Middle Atlantic Regional Meeting of the American Chemical Society, Hershey, PA (2006).
119. "Dating of Prehistoric Bones Using a Fluoride Ion Selective Electrode', 232nd ACS National Meeting, San Francisco, CA, (2006).
120. "Rapid Method of Detecting Flavonoids in Wine Using Raman Spectroscopy", 231st ACS National Meeting, Atlanta, GA, (2006).
121. "Zeolite Catalysis of Various Seed Oils for the Production of Biodiesel and Chemicals", 231st ACS National Meeting, Atlanta, GA, (2006).
122. "Characterization of tobacco smoke in American and Indian cigarettes by GC-MS with mass spectral deconvolution", Pacifichem 2005 Congress, Waikiki, HI (2005).
123. "Production and Characterization of Biodiesel", 57th Southeast/61st Southwest Joint Regional Meeting of the American Chemical Society, Memphis, TN (2005).
124. "Mass Spectrometric Determination of Carbonyl Compounds in Mainstream Tobacco Smoke", 53rd American Society of Mass Spectrometry Meeting, San Antonio, TX (2005).
125. "Application of Raman, Infrared, and Mass Spectrometric Techniques in Bioanalytical and Environmental Measurements" Chemistry Departmental Seminar at the University of the South (April 2005)
126. "Method development for the characterization of mainstream bidi smoke by gas chromatography-mass spectrometry (GC-MS) and infrared spectrometry (IR)", 228th ACS National Meeting, Philadelphia, PA, (2004).
127. "Application of the AMDIS Mass Spectral Deconvolution Algorithm for the Characterization of Cigarette Smoke" 52nd American Society of Mass Spectrometry Conference (2004)
128. "Characterization of Jet Engine Emissions", Pittsburgh Conference (2004).

129. "Application of the AMDIS Mass Spectral Deconvolution Algorithm for the GC-MS Characterization of Cigarette Smoke", 52nd American Society of Mass Spectrometry Meeting, Nashville, TN (2004).
130. "Internet-based Resources for Chemistry Research and Instruction", MTSU Information Technology's Share Fair (October 2004).
131. "Application of Surface-Enhanced Raman Spectrometry for the Analysis of Environmental Toxicants", 5th Annual University-Wide Showcase of Faculty and Staff Research, Creative Activity, and Public Service (October 2004).
132. "A Study of Bidi Cigarette Smoke Exposure on Salmonella typhimurium strains TA97a and TA98", 5th Annual University-Wide Showcase of Faculty and Staff Research, Creative Activity, and Public Service (October 2004).
133. "Characterization of Jet Engine Emissions", Pittsburgh Conference (March 2004).
134. "A study of Bidi Cigarette Smoke on Salmonella typhimurium Strains TA97a and TA98", 55th Southeast Regional Meeting of the American Chemical Society, Atlanta, GA (2003).
135. "Analysis of Hexachlorocyclopentadiene and Chlorinated Pesticides by GC-MS with SPME Preconcentration via Sparging of Samples", 55th Southeast Regional Meeting of the American Chemical Society, Atlanta, GA, (2003).
136. "Characterization of Mainstream Bidi Smoke by Gas Chromatography-Mass Spectrometry (GC-MS) and infrared spectrometry (IR)", 55th Southeast Regional Meeting of the American Chemical Society, Atlanta, GA, (2003).
137. "Analysis of Hexachlorocyclopentadiene and Related Pesticides by GC-MS with SPME in Sparging Mode", Tennessee Health Department (September 2003).
138. "Analysis of Cigarette Smoke by Gas Chromatography-Mass Spectrometry (GC-MS) and Infrared Spectrometry (IR)", Pittsburgh Conference (2003).
139. "Development of Thin Film Substrates for Transmission Infrared Spectrometric Analysis of Organic Compounds", Pittsburgh Conference (2003).
140. "Analysis of Polar Organic Compounds and Their Degradation By-products by GC-MS and FTIR", Pittsburgh Conference (2003).
141. "Methods Development for the Detection of Trace Metabolites from Biodegradation of Polycyclic Aromatic Hydrocarbons by Yeast", Pittsburgh Conference (2003).
142. "Environmental Quality Survey of Middle Tennessee Counties", Jennings and Rebecca Jones Chair of Excellence in Urban and Regional Planning, MTSU (2002)
143. "Analysis of Polar Organic Compounds in Air by Thermal Desorption GC-MS and FTIR Using Gas Cells", Air Force Research Laboratory, Tyndall Air Force Base, Florida (2002)
144. "Analysis of Respirable Particulate Matter by Scanning Electron Microscopy with X-Ray Microanalysis and Liquid Chromatography/Mass Spectroscopy", 22nd Society of Environmental Toxicology and Chemistry Meeting", Baltimore, Maryland (2001).
145. "Methods Development for the Detection of Trace Metabolites from the Biodegradation of Polycyclic Aromatic Hydrocarbons by Yeasts", Joint Meeting of the Tennessee and Kentucky Academies of Science, Murfreesboro, Tennessee (2001).
146. "The Role of Analytical Chemistry in the Studies of Air Pollution and Indoor Air Quality", Chemistry Department at Tennessee State University, Nashville, Tennessee (2001).
147. "Characterization of Metabolites from the Biotransformation of Polycyclic Aromatic Hydrocarbons (PAH) by *C. tropicalis*", Pittsburgh Conference, New Orleans, LA (2001).
148. "Techniques for Characterization of Particulate Matter", 21st Society of Environmental Toxicology and Chemistry Meeting", Nashville, Tennessee (2000).

149. "Organic Pollutants in the Indoor Air of Ice Arena", 21st Society of Environmental Toxicology and Chemistry Meeting", Nashville, Tennessee (2000).
150. "Chemical Speciation of Inhalable Particulate Matter in Ambient Air", 27th Conference of the Federation of Analytical Chemistry and Spectroscopy Societies, Nashville, TN (2000).
151. "Analysis of Pollutants in Automobile Emissions", 1st MTSU Faculty Research Symposium, Murfreesboro, Tennessee (2000).
152. "Methods for Air Pollution Monitoring at Industrial Facilities", International Symposium of Environmental Analytical Chemistry, Jekyll Island, Georgia (1998).
153. "Spectroscopic and Chromatographic Methods for Onsite Air Pollution Monitoring", Middle Tennessee State University (1998).

External Grants:

1. USDOE sub-award via Meharry Medical College, $279,907, Sub-Award: $37,046, Sustainable Solutions for Treating PFAS Containing Plumes at Contaminated Sites, 04/07/2025-04/06/2026; role: Sub-award PI
2. USDA-NRCS: Reducing Enteric Methane Production in Livestock through Herbal Feed Supplements in the Southeast U.S., $800,213, 06/01/2024-5/31/2027; role: Co-PI
3. USDOJ-NIJ: Recovery and Analysis of Less Volatile Components for the Identification of Ignitable Liquid Residues in Fire Debris, $99,818.00, 1/1/2024-12/31/2024; role: Co-PI/PI
4. TVA: Laboratory Characterization of Coal Combustion Residuals (CCRs) for Tennessee Valley Authority (TVA), $650,000, awarded but not executed, role: PI for geochemical characterization of CCRs by spectroscopic techniques.
5. NIEHS sub-award via University of Oklahoma: Quantitative Determination of Ammonia in Ambient Air Samples, $181,250, Sub-Award: $21,600, 11/02/2022-5/31/2023, role: Sub-award PI
6. NSF-MRI: Acquisition of an Ultra High Performance Liquid Chromatograph with a Tandem High Resolution Mass Spectrometer for Research and Training in Basic and Applied Sciences, $361,000, 8/15/2022-7/31/2022, role: co-PI in Y1-Y2 and PI for Y3
7. USDOJ-NIJ: Detection of Ignitable Liquid Residues in Fire Debris by Using Direct Analysis in Real Time Mass Spectrometry, $285,229; 12/1/20-11/30/23; role: Co-PI
8. Medicovestor: Contract for the Microscopic and Spectroscopic Evaluation of Treatment Methods for Sickle Cell Disease, $100,000, 10/16/2020-10/15-2021; role: PI
9. NSF-MRI: Acquisition of a Confocal Raman Microscope for Research and Training in Analytical Chemistry, Materials Chemistry, Biochemistry and Geosciences, $280,096; 09/1/19-08/31/22; role: PI
10. NSF-REU Site: Chemical Research Using X-Ray Characterization (CRUX), $166,880; 09/1/19-08/31/22; role: research mentor
11. DHS-FEMA: Characterization of Toxicants Found in Particulate Phase of Wildfire Smoke and Their Health Implications for Firefighters and Residents at the Wildland Urban Interface, $224,986; 07/1/19 - 06/30/22; role: Co-PI.
12. American Concrete Pipe Association: Characterization of Contaminants Released from Polymer Pipes, $10,340; 5/17/18 - 2/28/19; role: PI
13. CyberNational Incorporated: Development of Methods for Extraction of Cannabinoid and Terpenoid Compounds from Hemp, $5,000; 10/1/17 – 6/30/19

14. EPA: Reducing Exposure to Airborne Chemical Toxics (REACT) via Community-Scale Air Monitoring in Memphis, $574,404; 1/1/13 - 3/31/16; role: Co-PI and Lab Director
15. NSF REU: Geoenvironmental Challenges in the Southeastern U.S.: A Summer Undergraduate Research Experience for Pre-service Earth Science, Biology, and Chemistry Teachers, $ 368,331; 02/01/13 - 01/31/17; role: research mentor
16. Homeland Security-SERRI: Aerobic Decomposition - Alternative Method for Managing Large Scale Animal Fatalities, $160,708; 10/1/09 – 9/30/12; role: Co-PI
17. TBR Diversity and Access Grant: Improving Access of Instrumental Facilities at TBR Institutions $3,000; 2011-2012; role: PI
18. Tennessee Department of Environment and Conservation Grant: Biodiesel Fuel Additive Production and Emission Testing, $97,621; 9/1/07-8/31/08; role: PI
19. Department of Energy's ORNL Center for Nanoscale Materials Sciences project on the synthesis and characterization of mesoporous carbons as catalyst support, access to ORNL-CNMS instrumentation, 2007; role: PI
20. NSF-ANI #0228106, "High Performance Network Computing (HPNC) for MTSU: Simulation of the Transport of Atmospheric Pollutants", $150,000; 1/03-12/04; role: co-PI.
21. National Science Foundation & UT-Knoxville's Research Sites for Educators in Chemistry project on the application of surface-enhanced Raman Spectrometry, summer salary, 2004
22. Center for Disease Control project on biomonitoring of hexachlorocyclopentadiene that is administered through Tennessee Health Department, student stipend and supplies, 2002.
23. National Research Council Faculty Fellowship, "Analysis of Polar Organic Compounds by Thermal Desorption GC-MS" at the Air Force Research Laboratory, summer salary 2002.
24. USDOE's Oak Ridge National Laboratory summer project on the characterization of materials by electron microscopy that is coordinated by Southeastern Universities Research Association, student stipend and supplies, 2002.

Internal Grants:

25. MTSU Clean Energy grant for the purchase of pyrolysis GC-MS supplies for a project titled "Examining the Environmental Impact and Sustainable Uses of Recycled Tire Materials" $8,626, 2024.
26. MTSU Instructional Enhancement Grant for attending a training course offered by Quantum Analytics for pyrolysis GC-MS, $1,323, 2024.
27. MTSU Clean Energy grant for the purchase of a reactor with ultrasonication device for project titled "Reducing the Release of Microplastic Particles from Recycled Tire Rubber Products", $6,050, 2023
28. MTSU Clean Energy grant for the purchase of infrared spectroscopy accessory for a project titled "Reduction of toxicants CO and Benzene from biofuel combustion processes", $3,665, 2022.
29. MTSU Technology Access Fees funding for a GC-MS instrument with a pyrolyzer and a liquid autosampler, UV-Vis spectrophotometer, and 4 pumps for mass spectrometers, $194,145.44, 2022.
30. MT-IGO project entitled "Effects of Microplastics on Biogas Production from Anaerobic Digestion of Food Wastes" funded by MTSU Office of Research Services, 2022.

31. MTSU Clean Energy grant for the purchase of solid phase microextraction accessories for GC-MS use in a project titled "Study of Fire Suppressants for Mitigating Exposure to Wildfure Smoke and Their Impact on Environmental Sustainability", $4,831, 2021.
32. MTSU Clean Energy grant for the purchase of confocal Raman microscope accessories for a project titled "Plastic Recycling Priorities: Quantifying Different Types of Microplastic Particles Found in Surface Waters", $6,636, 2020
33. MTSU Clean Energy grant for the purchase of a headspace analyser for GC-MS, 2019
34. MTSU Public Service Grant for assistance to statewide organizing for community empowerment (SOCM): Pollution monitoring of the Middle Point Landfill Facility in Rutherford County, 2019.
35. MTSU Walker Library Digital Seed Grant for the development of infrared and NMR spectral databases for online use by researchers at MTSU and other institutions, 2019.
36. MTSU Clean Energy grant for the upgrade of GCs with modern data systems, 2018.
37. MTSU FRCAC grant for the GC and FTIR analysis of greenhouse gases released from various types of soil, 2017.
38. MTSU FRCAC grant for standardless quantitative analysis of volatile organic compounds using GC-FID with ARC's Polyarc Reactor, 2017.
39. MTSU Instructional Technologies Development Grant for Installation of Perkin Elmer Optima ICP-OES donated by Tennessee Health Department Laboratory, 2017.
40. MTSU Faculty Development Grant for attending Forensic Chemistry Workshop at Pittcon in Chicago, 2017.
41. MTSU Public Service Grant for monitoring emissions of volatile organic compounds from fracking facilities in Karnes County, Texas, 2016.
42. MTSU EXL grants for improving experiential learning in CHEM/FSCH 4230 (Instrumental Analysis) for 2013, 2014, 2015, 2016 and 2020.
43. MTSU Instructional Technologies Development Grant for Improvement of Student Learning Experience in Chemistry Laboratory Courses via the Use of LabArchives and TargetView Software, 2014.
44. MTSU-FRCAC Academic Year Research proposal on the analysis of biofuel emissions by GC-MS and FTIR, 2009.
45. MTSU-FRCAC Academic Year and Summer Research proposal on the characterization of the decomposition chemistry of animal remains, 2008.
46. MTSU Faculty Development Grant for attending a workshop in the electron microscopy of nanomaterials at the Microscopy and Microanalysis Meeting in Richmond, VA, 2007.
47. MTSU Instructional Technologies Development Grant for release time in Spring 2002 to develop Internet-based learning resources, 2001.
48. MTSU Public Service Grant to monitor air pollutants at industrial and urban locations in Tennessee, 2001.
49. MTSU Faculty Development Grant to attend Agilent Technologies' 4-day training course for LC-MSD, 2000.
50. MTSU Foundation proposal entitled "Monitoring of Air Quality and Promotion of Environmental Awareness in Tennessee", 2000.
51. MTSU-FRCAC Academic Year Research proposal entitled "Development of Methods for the Analysis of Environmental Pollutants", 1999.

52. MTSU Instructional Evaluation and Development grant proposal entitled "Enhancement and Evaluation of Instructional Effectiveness in General Chemistry and Environmental Science", 1999.
53. MTSU-FRCAC Summer Research proposal entitled "Development of Methods for the Analysis of Environmental Pollutants", 1999.

Honors/Awards:

- High Impact Practices Ambassador in Undergraduate Research, Tennessee Board of Regents in 2025-2026
- American Chemical Society Nashville Local Section award for public outreach activities at Murfreesboro Discovery Center and Earth Day at Centennial Park in 2025-2026
- Fulbright Foundation award for hosting a Scholar-In-Residence from Universiti Science Malaysia in 2025
- Travel awards for NSF-funded Active Learning Workshops at Washington University in 2018 and at Clemson University in 2019
- Tennessee Board of Regents' Certificate of Appreciation for Serving as a Reviewer for the Faculty Research Grant Competition, 2016-2017
- MTSU Distinguished Research Award, 2014-2015
- MTSU-CBAS Excellence in Presentations Award, 2010-2011
- MTSU-CBAS Award for Teaching Excellence, 2008-2009
- NSF Travel Grant Awards for Graduate Student Participation in Green Chemistry Conference for 2007, 2008, and 2009
- MTSU-CBAS Award for Overall Excellence, 2007-2008
- NSF-funded travel grant for CCWCS workshop in Process Analytical Chemistry, 2007
- DOE-FaST Faculty Fellowship at Oak Ridge National Laboratory, 2006
- MTSU-CBAS Excellence in Presentations Award, 2006-2007
- Appointed by Governor Bredesen to Tennessee Air Pollution Control Board, 2004-08
- NSF-RSEC Faculty Fellowship at Oak Ridge National Laboratory, 2004
- National Research Council's Faculty Fellowship at Air Force Research Laboratory, 2002
- MTSU Distinguished Research Award, 2000-2001
- Phi Lambda Upsilon, Honorary Chemistry Society, membership since 1991
- Robert A. Welch Fellowship, Rice University, 1989 and 1990

Dissertations/Theses directed:

1. Honors Thesis entitled "Characterization of Toxicants Released from Recycled Tire Materials via Water Leaching". Sofia Cardosa Perez, December 2026.
2. Honors Thesis entitled "Analysis of Cannabinoids in Tennessee Hemp and Their Long-Term Stability". Aleeza Razzaq, December 2026.
3. Master of Science thesis entitled "Optimization of Cannabinoid Extraction Conditions Including Solvent Choices Using Microwave and Ultrasonication Methods", Joshua Animasaun, December 2023.
4. Honors Thesis entitled "Methods Development for Low-Level Ammonia and Methane Analysis Using FTIR", Sarah Bom-Crocker, May 2023.

5. Master of Science thesis entitled “Forensic Identification of Red Dyes on Fabric Fibers Using Raman Microscopy and Surface-Enhanced Raman Scattering via Microwave Assisted Microextraction”, Biliquis Bintinlaiye, May 2023
6. Honors Thesis entitled “Quantitative GC-MS Determination of Benzene and Toluene in Ambient Air of Shelby County, Tennessee”, Fady Barsoum, December 2022.
7. Honors Thesis entitled “GC-MS Analysis of Acetone, Methyl Isobutyl Ketone, and Methyl Ethyl Ketone in Ambient Air Samples from Shelby County, Tennessee”, Verina Rezk, December 2022.
8. Honors Thesis entitled “Dye Analysis by Direct Analysis in Real Time Mass Spectrometry and Raman Spectroscopy”, Miquellie Bonner, December 2021.
9. Master of Science thesis entitled “Development of a Multi-Spectral Scheme for the Identification of Dyes in Color Powders”. Daniela Taylor, December 2020.
10. Master of Science thesis entitled “Improvement of Biodiesel Yields via CaO Catalysis in Ultrasonication Mode and Fuel Formulation with Oxygenate Additives to Reduce Toxic Emissions”. Saidi Abdulramoni. May 2019.
11. Master of Science thesis entitled “Comparison of Chlorine Dioxide and Ozone as Oxidants for the Degradation of Volatile Organic Compounds”. Md Abdul Hoque. August 2018.
12. Master of Science thesis entitled “Development of a Sorbent-Based Method for the Analysis of Biogenic Terpenes and Volatile Organic Compounds from Industrial Sources”. Masoumeh Dalilian. August 2018.
13. Master of Science thesis entitled “Utilization of Shell-based Calcium Oxide as Heterogeneous Catalysts for Biodiesel Synthesis”. Francis Okejiri. August 2017.
14. Master of Science thesis entitled “Analysis of Volatile Organic Compounds (VOCs) from Hydraulic Fracturing Facilities in Karnes County, Texas and Identification of VOCs in Shelby County, Tennessee” Kiin Keith. August 2017.
15. Master of Science thesis entitled “Analytical Characterization of Dyes Used in Color Powder by Spectroscopic and Chromatographic Techniques”. Rehab Alanazi. May 2017.
16. Master of Science thesis entitled “Degradation of Environmental Contaminants in Gas and Liquid Phases by Chlorine Dioxide”. Sushma Appala, August 2016.
17. Master of Science thesis entitled “Comparison of Emissions of Various Biodiesel Formulations by Gas Chromatography/Mass Spectrometry (GC-MS) and Fourier Transform Infrared Spectroscopy (FTIR)”. Shruthi Perna, May 2016.
18. Master of Science thesis entitled “Comparative Studies of Electronic Cigarette Emissions”. Kavya Kazipeta. December 2015.
19. Master of Science thesis entitled “Effects of Substituent Groups on the Surface Enhanced Raman Scattering and Infrared Spectroscopic Signals of Aniline Derivatives”. Eman Sharba. December 2015.
20. Master of Science thesis entitled “Analysis of Volatile Organic Compounds Emitted during Aerobic Decomposition of Various Swine Tissues”. Samantha Keene. December 2015.
21. Master of Science thesis entitled “Air Quality Monitoring in Memphis and Surrounding Areas Using EPA TO-15 Method Based on Gas Chromatography/Mass Spectrometry (GC/MS) Analysis of Ambient Air Using Canister Sampling”. Ebtsam Seteh. August 2015.

22. Master of Science thesis entitled "Analysis of Volatile Organic Compounds in Air Samples by Infrared Spectroscopic Analysis of Sorbent Tube Samples" Craig Lampert, December 2013.
23. Master of Science thesis entitled "Influence of pH and Nanoparticle Characteristics on the SERS Signals of Aminobiphenyl Isomers". Kiran Donthula. May 2012.
24. Honors Thesis entitled "An Examination and Comparison of Static and Dynamic Headspace Sampling as Accelerant Extraction Techniques". Jordan Cox, December 2011.
25. Master of Science thesis entitled "Analysis of Synthetic Cannabinoids in Smoke Samples from Herbal Products by Gas Chromatography–Mass Spectrometry (GC-MS) and Infrared Spectroscopy (IR)". Vanessa Hobbs. August 2011.
26. Master of Science thesis entitled "Analysis of Melamine and Cyanuric Acid in Contaminated Pet Food and Milk Products by Raman Spectroscopy". Setti Sunil Kumar, August 2010.
27. Master of Science thesis entitled "Application of Surface-Enhanced Raman Scattering and Infrared Spectroscopy for the Analysis of Antibiotics". Subathra Ramamoorthy, August 2009.
28. Master of Science thesis entitled "Analysis of Volatile Organic Compounds via Thermal Desorption of Sorbent Tubes in Series with Cryogenically Cooled On-Column Gas Chromatography". David Kofink, August 2008.
29. Doctor of Arts dissertation entitled "Part A: The Effect of the Learning Model on the Epistemological Beliefs of Students Enrolled in General Chemistry Laboratory for Post-Baccalaureate Pre-Medical Students. Part B: Environmental Quality Survey Utilizing TRI Explorer and USGS Water Data and the Analysis and Characterization of Particulate Matter using Scanning Electron Microscopy". Darcie Wallace. August 2006.
30. Doctor of Arts dissertation entitled "Methods Development for the Characterization of Mainstream Bidi Cigarette Smoke and Assessment of Experiments for Environmental Analysis". Omobola Oladipupo. August 2005.
31. Master of Science thesis entitled "Analysis of Hexachlorocyclopentadiene and Chlorinated Pesticides by GC-MS with Dynamic Headspace Sampling by SPME". Chun U Park. August 2004.
32. Master of Science thesis entitled "Characterization of Hollandite and Analytical Applications of Infrared-Transparent Thin Films". Xun Liang. December 2003.
33. Master of Science thesis entitled "Development of Analytical Techniques for the Comparative Characterization of Indian (Beedies) and American Cigarettes". Kristi Wagner. August 2002.
34. Master of Science thesis entitled "Methods of Development for Detection of Trace Metabolites from the Biotransformation of Phenanthrene be Candida Tropicalis 96745 CP1-1". Alex M. Mulisa. December 2001.
35. Master of Science thesis entitled "Analysis of Particulate Matter in Air Samples Using High Performance Liquid Chromatography (HPLC) and Scanning Electron Microscopy with Energy Dispersive X-Ray Analysis (SEM/EDXA)". Kavitha Sivaramakrishnan. August 2001.

Mentoring of High School Students

- Provided research opportunities to high school students and mentored them for senior theses and regional science competitions.

- Participated in mentoring high school students via Project Seed of American Chemical Society and NSF-funded StepMT program.
- Students went on to pursue higher education at the University of Michigan, Princeton University, Duke University, California Institute of Technology, Columbia University, University of Virginia, Vanderbilt University, University of Pennsylvania, Tennessee Technological University, and East Tennessee State University.

Professional Organization Memberships and Positions Held:

- Journal Editorial Board Member for *Fire*
- Tennessee Air Pollution Control Board Member 2004-2008
- American Chemical Society
- American Society for Mass Spectrometry
- Tennessee Academy of Sciences
- Sigma Xi