Augustus Way Fountain III

Curriculum Vitae (Short)

Office Address:
Department of Chemistry and Biochemistry
University of South Carolina
1112 Greene Street, Suite 227
Columbia, SC 29201
(803) 777 – 3904
Email: way.fountain@sc.edu

EDUCATION:

Ph.D. The Florida State University, Tallahassee, Florida
Major: Analytical Chemistry, 1997
Dissertation Advisor: Charles K. Mann
Dissertation Title: Abscissa Calibration and Transfer for the Development of Instrument Independent Raman Spectra

M.S.S. The United States Army War College, Carlisle, Pennsylvania
National Strategic Studies, 2004
Strategic Research Project Advisor: Leonard Fullenkamp
Strategic Research Project: Transforming Defense Basic Research Strategy

M.S. The Florida State University, Tallahassee, Florida
Major: Analytical Chemistry, 1994
Thesis Advisor: Thomas J. Vickers
Thesis Title: The Fourier Transform Approach to Raman Spectroscopy

B.S. Stetson University, DeLand, Florida
Major: Chemistry, ACS Certified, 1985
Research Advisor: Edwin Coolidge
Research Title: Application of Differential Pulse Anodic Stripping Voltammetry for the Determination of Selected Heavy Metals

QUALIFICATIONS SUMMARY:

Highly driven Executive-level professional and scientist with over 35 years of diverse experience spanning the U.S. Army and the Federal Government. Recognized as the Department of the Army's scientific ambassador to Government, Military, Industry, Academia, and International partners on a range of research and program areas. Poised to leverage vision, strategic perspective and awareness, and vast technical expertise to plan, direct, and oversee Department of Defense research programs in support of current and future military goals.

RESEARCH INTERESTS:

Analytical Chemistry: Vibrational Spectroscopy, Laser Spectroscopy, Chemometrics and Electrochemistry. My primary interests involve the development of novel methodologies, especially those using optical spectroscopy, for qualitative and quantitative analysis to solve difficult chemical problems. I am especially interested in the coupling of vibrational spectroscopy (both infrared and laser Raman spectroscopy) and optical imaging to gather chemical information remotely.

TEACHING SUMMARY:

As an Instructor and Senior Instructor at the University of South Carolina, Columbia, SC from 2019 – 2025 I have served as the Chemistry Majors Freshman Laboratory Coordinator, Instrumental Laboratory Coordinator, Coordinator of the Forensics Minor and taught the following courses:

1. Introduction to Forensic Science (CHEM 107). Surveys scientific aspects of criminal investigation and adjudication including drug, arson, DNA, paint, and fiber identification.
2. General Chemistry I and II (CHEM111/112). This is a survey of the principles that underlie all chemistry with applications illustrating these principles.
3. Principles of General Chemistry I and II (CHEM141/142). Advanced general chemistry for both Honors and Majors.
4. Introduction to Quantitative Analysis (CHEM321). Introduction of statistics, gravimetric, volumetric, and introductory instrumental analysis.
5. Introduction to Analytical Chemistry (CHEM322). Qualitative analysis, quantitative analysis, fundamental or method analysis, and molecular characterization.
6. Instrumental Analysis and Laboratory (CHEM621/CHEM621L). Chemical instrumentation including electronics, signal processing, statistical analysis, molecular/atomic spectroscopy, electrochemical methods, chromatography, and mass spectrometry. I was also responsible for maintaining the In Instrumental Suite in 1112 Greene for Advanced Electives
7. Forensic Analytical Chemistry (CHEM 622). Analytical chemical methods in forensic science, including gathering of evidence, toxicology, drug identification, analysis of trace evidence, arson analysis, and DNA/serology.
8. Spectrochemical Analysis (CHEM 722). A graduate level comprehensive study of theory, instrumentation, methodology, and analytical applications of modern atomic and quantitative molecular spectrometry.

APPOINTMENTS:
Assistant Professor, USMA, appointed August 1995
Associate Professor, USMA, appointed August 1998
Professor of Chemistry, USMA, appointed August 2004
Adjunct Professor of Chemistry and Biochemistry, University of Maryland (Baltimore County), appointed December 2007
Senior Instructor, University of South Carolina, 2019 – present

PATENTS, PATENTS FILED, DISCLOSURES:

1. Gregory W Peterson, Augustus W Fountain, III, Jennifer R Soliz, Adam J Hauser, Use of metal-organic frameworks and metal oxides for sensing chemicals using electrical impedance spectroscopy, United States Patent Number 10,495,592, filed with the USPTO August 29, 2017, issued December 3, 2019.
2. Ashish Tripathi, Jason A. Guicheteau, Erik D. Emmons, Steven D. Christesen, Augustus W. Fountain, Darren K. Emge, Phillip G. Wilcox Apparatus and Method to Identify Exogenous and Residue Material From Biometric and Surface Measurements, Disclosed February 8, 2011.
3. John M. Ingram, Thomas M. Spudich, Augustus W. Fountain III, Light Emitting Element Based on Laser Carbonized Polymer Substrate, U.S. Patent No. 8,587,188; disclosed November 5, 2008; filed in the USPTO on 04/27/2010; issuance allowed on 11/05/2013; issued on 11/19/2013.
4. Augustus W. Fountain III, John M. Ingram, James A. Nicholson, Development and Optimization of a Laser Carbonized Polyimide Film as a Sensor Substrate for an all Polymer Humidity Sensor, U.S. Patent Number 6,796,166; disclosed December 3, 2002; issuance allowed August 11, 2004; issued September 28, 2004.

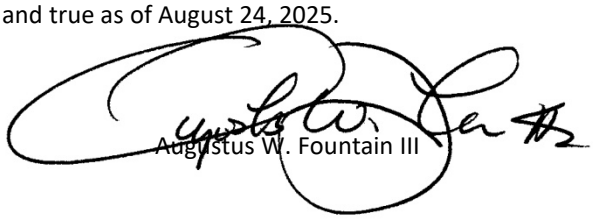
SELECTED PUBLICATIONS:

1. Augustus W. Fountain III "Evaluation of the zero x plus/gold Raman microscope objective for representative sampling of pharmaceutical tablets", Proc. SPIE 13478, Chemical, Biological, Radiological,

Nuclear, and Explosives (CBRNE) Sensing XXVI, 134780P (28 May 2025); https://doi.org/10.1117/12.3051403
2. Nuwanthaka P. Jayaweera, John H. Dunlap, Fiaz Ahmed, Taylor Larison, Leman Buzoglu Kurnaz, Morgan Stefik, Perry J. Pellechia, Augustus W. Fountain III, and Andrew B. Greytak, Inorganic Chemistry 2022 61 (28), 10942-10949. DOI: 10.1021/acs.inorgchem.2c01494.
3. Ashish Tripathi, Erik D. Emmons, Neal D. Kline, Steven D. Christesen, Augustus W. Fountain, and Jason A. Guicheteau; Molecular Structure and Solvent Factors Influencing SERS on Planar Gold Substrates; The Journal of Physical Chemistry C; Just Accepted Manuscript; DOI: 10.1021/acs.jpcc.8b00353.
4. Guicheteau, Jason; Tripathi, Ashish; Emmons, Erik D; Christesen, Steven; Fountain, Augustus W; Reassessing SERS Enhancement Factors: Using Thermodynamics to Drive Substrate Design, Faraday Discussions, 2017. DOI: 10.1039/C7FD00141J.
5. Neal D Kline, Ashish Tripathi, Rustin Mirsafavi, Ian Pardoe, Martin Moskovits, Carl Meinhart, Jason A Guicheteau, Steven D Christesen, Augustus W Fountain III, Optimization of Surface-Enhanced Raman Spectroscopy Conditions for Implementation into a Microfluidic Device for Drug Detection, Analytical Chemistry, 88(21), 10513-10522.
6. Augustus W. Fountain III, Steven D. Christesen, Erik D. Emmons, Raphael P. Moon, and Jason A. Guicheteau; Recent Advances and Remaining Challenges for the Spectroscopic Detection of Explosive Threats (Invited Focal Point); Applied Spectroscopy, 2014, 68(8), pp. 795-811. DOI: 10.1366/14-07560.
7. Emmons, E. D.; Guicheteau, J. A.; Fountain, A. W.; Christesen, S. D., Comparison of Visible and Near-Infrared Raman Cross-Sections of Explosives in Solution and in the Solid State. Appl. Spectrosc. 2012, 66, (6), 636-643.
8. Tripathi, A. E., Erik D.; Wilcox, Phillip G.; Guicheteau, Jason A.; Emge, Darren K.; Christesen, Steven D.; Fountain III, Augustus W., Semi-Automated Detection of Trace Explosives in Fingerprints on Strongly Interfering Surfaces with Raman Chemical Imaging. *Applied Spectroscopy,* 2011, 65, (6), 611-619.
9. E.D. Emmons, A. Tripathi, J.A. Guicheteau, S.D. Christesen, and A.W. Fountain III Raman Chemical Imaging of Explosive-Contaminated Fingerprints *Appl. Spectrosc.*, 63, 11, pp1197 – 1203., DOI: 10.1366/000370209789806812.
10. William F. Pearman and Augustus W. Fountain III Classification of Chemical and Biological Warfare Agent Simulants by Surface Enhanced Raman Spectroscopy and Multivariate Statistical Techniques, *Appl. Spectrosc.* 60, 4, 2006, 356 – 365.

HONORS:
Elected Fellow, SPIE—Society of Photo-Optical Instrumentation Engineers, 2014
Garnet Apple Award, University of South Carolina, 2024
2016 Presidential Rank Award – Meritorious Senior Professional, Department of the Army
2013 U.S. Army Research & Development Achievement Award, 2014
2019 SET Panel Excellence Award (SPEA), NATO Science and Technology Board

I certify that this document is accurate and true as of August 24, 2025.



Augustus W. Fountain III