
JAMIE FERRINO-MCALLISTER, P.E., C.F.I, Ph.D.

EDUCATION:

Ph.D., Forensic Toxicology, University of Maryland, School of Medicine, Baltimore, MD, 2010.

M.S., Fire Protection Engineering, University of Maryland, School of Engineering, College Park, MD, 2002.

B.S., Fire Protection Engineering, University of Maryland, School of Engineering, College Park, MD, 2000.

DOCTORAL THESIS:

Ferrino-McAllister, J. "Fire Victim Blood Cyanide Stability and the Development of a Cyanide Uptake Model", University of Maryland, Baltimore, May 2010.

MASTER THESIS:

Ferrino, J. "An Investigation of Fire Phenomena in Residential Electrical Wiring and Connections", University of Maryland, College Park, December 2002.

PROFESSIONAL EXPERIENCE:

University of Maryland, College Park, MD, 2014 to present.

Lecturer (1/2014 to present)

Instructor for the School of Engineering, Fire Protection Engineering Online Graduate Program. Responsibilities include educating graduate students on topics related to human behavior, people movement, life safety, heat and toxic species production, and tenability in fires.

Fire Laboratory Technician (9/1999 to 5/2000)

Used the cone calorimeter, performed flammability characteristics calculations. Conducted research project in conjunction with the National Institute of Standards and Technology studying burning characteristics of gypsum wallboard with varying layers of paint (over 150 tests). Research was published in "Flammability of Oil-Based Painted Gypsum Wallboard Subjected to Fire Heat Fluxes" by Dr. Mowrer and presented at the 2001 NFPA World Fire Safety Congress and Exposition.

National Institute of Standards and Technology, Gaithersburg, MD, 2013 to present.

Group Leader, Fire Protection Engineer (8/2015 to present)

Perform the duties previously described under "*Fire Protection Engineer.*" Supervise and lead the Fire & Facilities Safety Group including distribution of tasks, budget management, and time and attendance. Develop and implement policies and suborders related to fire and life safety applicable to all NIST campuses. Act as the Authority Having Jurisdiction for fire and life safety compliance/enforcement.

Fire Protection Engineer (8/2013 to 7/2015)

Review research project proposals and associated equipment (e.g. apparatus, flammable liquids, and compressed gases) to identify potential fire, life safety, and toxicological hazards. Provide methodologies to eliminate or protect against the identified hazards associated with research projects including implementation of monitoring devices, suppression and detection, and personal protective equipment. Review construction safety plans to ensure appropriate implementation of safety precautions and

procedures to protect against fire and life safety hazards. Review design plans for renovations and new construction on campus to ensure correct implementation of fire and life safety systems and compliance with regulatory codes.

Combustion Science & Engineering, Inc., Columbia, MD, 2000 to present.

Consulting Engineering/Toxicologist (8/2013 to present)

Responsible for the evaluation of issues related to residential, commercial, and industrial fire, combustion, and toxicological events. Conduct fire hazard analysis, forensic failure investigations, post-fire reconstruction analysis, victim toxicological analysis, computational fluid dynamics fire modeling, fire dynamics analysis, case related large and small-scale experimentation, and building/fire code review and analysis.

Principal Engineer/Toxicologist (5/2010 to 7/2013)

Responsible for managing the fire investigations unit and acting as a lead scene investigator. Direct, manage, and conduct residential, commercial, and industrial fire, combustion, and toxicological incident investigations. Direct, manage, and conduct engineering fire hazard analysis and forensic failure investigations to prevent and/or explain fires, explosions, and toxicological incidents. Direct, manage, and conduct post-fire reconstruction analysis, victim toxicological analysis, computational fluid dynamics fire modeling, fire dynamics analysis, case related large and small-scale experimentation, and building/fire code review and analysis. Direct, manage, and conduct investigations of carbon monoxide poisoning incidents from combustion devices. Additional areas of focus: fire department operations as it related to fire spread, damage, and pattern development, and drug and alcohol effects as it related to victim impairment. Litigation experience spans a broad range of both criminal and civil cases involving residential, commercial, and industrial fires and toxicological incidents.

Senior Engineer (1/2007 to 4/2010)

Perform the duties previously described under “*Project Engineer*” as well as direct and manage other Project Engineers in the performance of the same duties. Perform as an expert witness.

Project Engineer (12/2002 to 12/2006)

Perform residential, commercial, and industrial origin and cause investigations; Conduct engineering fire hazard analysis and forensic failure investigations to prevent and/or explain fires and explosions; Oversee post-fire reconstruction and laboratory testing; Perform code review, fire modeling (CFAST and FDS), fire dynamics analysis, carbon monoxide poisoning analysis, and fire victim toxicological analysis.

Staff Engineer (12/2000 to 11/2002)

Perform the duties previously described under “*Engineering Technician*” in a full-time capacity; Design (in addition to conducting) laboratory tests for litigation support and research and development; Perform code reviews, fire modeling (CFAST and FDS), fire dynamics analysis for litigation support.

Engineering Technician (5/2000 to 11/2000)

Assist in the investigation of residential, commercial, and industrial fires; Conduct laboratory experiments for the purposes of post-fire reconstruction analysis and product failure analysis in conjunction with fire litigation; Conduct laboratory experiments for the purposes of fire modeling validation; Conduct laboratory experiments for government or corporate funded research and development; Responsible for designing data acquisition programs, constructing small and large-scale test compartments, and instrumenting compartments with thermocouples, heat flux gauges, and gas probes.

Eastern Kentucky University, Richmond, KY, 2010 to present.

Instructor/Facilitator (8/2010 to present)

Online instructor and facilitator for Fire Protection Administration and Fire Protection and Safety Engineering Technology Programs. Responsibilities include educating undergraduate students on topics related to fire behavior, combustion sciences, and the use of statistics in fire safety analysis.

University of Maryland, University College, Adelphi, MD, April 2008 to present.

Associate Professor (8/2014 to present)

Instructor for the Mathematics Departments. Responsibilities include educating undergraduate students on topics related to collegiate mathematics. Promotion to Associate Professor is based on years of service, as well as, relevant and effective service and support of institutional academic rigor.

Assistant Professor (4/2008 to 7/2014)

Instructor for the Fire Science and Mathematics Departments. Responsibilities include educating undergraduate students on topics related to fire origin and cause investigation, fire behavior, fire ignition, fire growth and spread, and legal considerations in fire investigation, as well as, mathematics.

Stanton Engineering, Laurel, MD, 1999 to 2000.

Engineering Technician, (11/1999 to 5/2000)

Used National Fire Codes, specifically NFPA 13, 72, and 101. Performed life safety analysis, fire alarm and sprinkler system design, fire modeling, and fire risk assessment. Notable projects: The Pentagon, United States Naval Academy, The Smithsonian Institute. Used *Microstation*

Tilley Fire Equipment Company, Doylestown, PA, 1999.

Sprinkler System Designer/Engineering Technician (5/1999 to 8/1999, Summer Internship)

Used National Fire Codes, specifically NFPA 13, 13D, and 13R. Designed retrofit, tenant finish, and new sprinkler systems. Performed field checks, surveyed installation and fabrication. Assessed blueprints, cut sheets, fabrication reports, and hydraulic calculations. Used *Autocad 14 w/ SprinkCad*.

RELATED EXPERIENCE:

Contract Instructor: National Fire Academy, Emmitsburg, MD

Reviewer: Fire Technology, Fire Safety Journal, International Association of Fire Safety Science, and Brady Publishing

Subject Matter Expert: Department of Defense- Toxic (Fire) Gas Inhalation Injury (BIPTAP), Society of Fire Protection Engineering- Guide on Human Behavior in Fire, DHS/FEMA/USFA Practical Applications of Fire Dynamics and Modeling

Colmar Vol. Fire Company (July '95- December '00)

Position(s) Held: Firefighter

Beltsville Vol. Fire Department (Station 41)/Prince George's County Fire Department (Oct '98-Jan '03)

Position(s) Held: Firefighter/EMT

West Lanham Vol. Fire Department (Station 48)/Prince George's County Fire Department (Jan '03-June '03)

Position(s) Held: Firefighter/EMT

Morningside Vol. Fire Department (Station 27)/Prince George's County Fire Department (June '03-Present)

Position(s) Held: Firefighter/EMT, Apparatus Driver/Operator, Lieutenant, Vice President, Life Member, Recruitment/Retention Team Member, New Apparatus Design/Procurement Committee Member, and Grant Committee Chairperson (successfully awarded \$840,000 from the USFA/FEMA).

Fire Department Certifications: Firefighter Level I & II, Emergency Medical Technician, Hazardous Materials Technician, Rescue Technician (Vehicle, Trench, Structural Collapse), Emergency Vehicle Operator, Pump Operator, Fire Service Instructor I & II, NFA Fire/Arson Origin and Cause Investigation.

PRESENTATIONS/LECTURERS/APPEARANCES:

“Electrical Fire Research” presented at NFPA 921 Committee Meeting, Tucson, AZ, February 2002.

“Arson Investigation” segment, Fox 5 News, WTTG-DC, May 2005.

“Comparison of Gasoline Weathering on Carpet Samples Exposed to Various Thermal Environments”, presented at International Symposium on Fire Investigation Science and Technology, Cincinnati, OH, June 2006.

“The Extent of Evaporation of Ignitable Liquids Under Exposure to Compartment Fires, Non-Fire Thermal and Non-Thermal Environments” presented at Fire and Materials, San Francisco, CA, January 2007.

“Smoke Detection Systems, Fire Modeling, and Fire Toxicology: Useful Tools in Fire Investigation and Reconstruction,” presented at Cozen O’Connor Continuing Legal Education seminar, Philadelphia, PA, April 2007.

“Application of Fundamental Principles”, presented at International Association of Arson Investigators Conference, Denver, CO, April 2008.

“Applications of Forensic Toxicology in Fire Origin and Cause Determination”, presented at the Society of Fire Protection Engineers Professional Development Conference, Charlotte, NC, October 2008.

“The Use of Forensic Toxicology in Fire Origin and Cause Determination”, presented to the Advanced Fire Investigation Class, Montgomery College, Rockville, MD, February 2009.

“Forensics: You Decide- Up in Flames”, Season 1, Episode 3, Investigation Discovery, Discovery Channel, August 2009.

NFPA 921: Guide to Fire and Explosion Investigation; Session 1: Electricity and Fire, Session 2: Fire and Explosion Deaths and Injuries, presented to the Office of the Maryland State Fire Marshal, February 17, 2010 and March 3, 2010.

“Burned: Arson Investigation Evidence Changes with Science”, 20/20, ABC News, May 7, 2010.

“Forensic Toxicology in Fire Investigation: The Kristine Bunch Case Study”, presented to the Society of Fire Protection Engineers, Beltsville, MD February 8, 2011.

“The Scientific Method and a Case of Arson-for-Hire”, presented at the Circumstantial Arson Case: Investigative Techniques and Strategies Seminar, King of Prussia, PA, February 9, 2011.

“Fire Related Deaths and Injuries: The Use of Toxicological Data in Fire Origin and Cause Determination”, presented at the National Fire Academy, Emmitsburg, MD, March 19, 2011, April 19, 2011, June 28, 2011.

“Fire Related Deaths and Injuries: The Use of Toxicological Data in Fire Origin and Cause Determination”, presented at the International Association of Arson Investigators, NC/SC Chapter Training Conference, Myrtle Beach, SC, October 20, 2011.

“Toxicology in Fire Investigation”, presented at the International Association of Arson Investigators, Annual Training Conference, Dover, DE, April 25, 2012.

“Practical Applications of Fire Dynamics and Modeling”, presented at the National Fire Academy, Emmitsburg, MD, August 21st-23rd, 2012 and December 2nd- 7th, 2012.

PROFESSIONAL CERTIFICATIONS:

Registered Professional Engineer (Fire Protection), State of Delaware, License # 13162 (2004-present)
Registered Professional Engineer (Fire Protection), State of Maryland, License #39570 (2010-present)
Certified Fire and Explosion Investigator, National Association of Fire Investigators, Registration # 10121-4644 (2004-2012)
Certified Fire Investigator, International Association of Arson Investigators, Certification #53-120705 (2009-present)

PROFESSIONAL AFFILIATIONS:

Current

Friend, NFPA 921, Guide for Fire and Explosion Investigations
Member, International Association of Arson Investigators (IAAI)
Member, International Code Council (ICC)
Member, National Fire Protection Association (NFPA)
Member, Society of Forensic Toxicology (SOFT)
Member, Society of Fire Protection Engineers (SFPE)
Member, Technical Working Group for Fire and Explosives (TWGFEX)

Past

Committee, NFPA 720, Standard for the Installation of Carbon Monoxide Detection and Warning Equipment
Committee, ISO/TC 92/SC3, Fire threat to people and the environment
Member, Society of Toxicology (SOT)
Member, International Association for Fire Safety Science (IAFSS)

PUBLICATIONS:

- Ferrino-McAllister, J., Roby, R.J., Milke, J., "Heating of Electrical Contacts: Characterizing the Effects of Torque, Contact Area, and Movement on the Temperature of Residential Receptacles", *Fire Technology*, Volume 42, No.1, January 2006, pp. 49-74.
- Ferrino-McAllister, J.L., Roby, R.J., Klassen, M.S., Milke, J., "Heating of Electrical Conductors: Characterizing the Deformation of Cable Exposed to External Radiant Heating and Internal Overload", *Fire and Arson Investigator*, Volume 56, Number 2, October 2005.
- Ferrino-McAllister, J.L., Carpenter, D., Roby, Richard, "Comparison of Gasoline Weathering on Carpet Samples Exposed to Various Thermal Environments", *Proceedings from the 2nd International Symposium on Fire Investigation Science and Technology*, Cincinnati, OH, 2006.
- Ferrino-McAllister, J.L., Carpenter, D., Roby, R., Torero, J., "The Extent of Evaporation of Ignitable Liquids Under Exposure to Compartment Fires, Non-Fire Thermal and Non-Thermal Environments", *Proceedings from the 10th International Conference, Fire and Materials*, San Francisco, CA, 2007.
- McAllister, J.L., Roby, R., Levine, B., Purser, D., "Stability of Cyanide in Cadavers and in Postmortem Stored Tissue Specimens, a Review", *Journal of Analytical Toxicology*, Volume 32, Number 8, pp. 612-620, October 2008.
- Goodman, A., Schooler, C., McAllister, J.L., "Physical Characteristics of Non-Energized and Energized Cables in Scaled Compartment Fires" *Proceedings from the International Symposium on Fire Investigation Science and Technology*, College Park, MD, 2010.
- McAllister, J.L., Roby, R., Levine, B., Purser, D., "The Effect of Sodium Fluoride on the Stability of Cyanide in Postmortem Blood Samples from Fire Victims", *Forensic Science International*, Volume 209, pp. 29-33,

May 2011.

Roby, R., McAllister, J.L., “Forensic Investigation Techniques for Inspecting Electrical Conductors Involved in Fire”, United States Department of Justice, Document No. 239052, July 2012.

Hussain, N., McAllister, J.L., Roby, R., “Analysis of Beads Formed on Energized and Non-Energized Electrical Copper Conductors Exposed to Various Thermal Insults”, Proceedings from the International Symposium on Fire Investigation Science and Technology, College Park, MD, 2012.

McAllister, J.L., Carpenter, D.J., Roby, R.J., Purser, D. “The Importance of Autopsy and Injury Data in the Investigation of Fires”, *Fire Technology*, November 2014, Volume 50, Issue 6, pp. 1357-1377.

McAllister, J. (2014). Health Effects in Groups Exposed to Wildland and Urban Fires. *In Health Effects from Combustion Products*. Abingdon, Oxfordshire: Royal Society of Chemistry.

McAllister, J., & Purser, D. (proposed December 2015 release). Assessment of Hazards to Occupants from Smoke, Toxic Gases, and Heat. In *SFPE Handbook of Fire Protection Engineering* (5th ed.). Quincy, Massachusetts: National Fire Protection Association.