

Exponent®
Engineering & Scientific Consulting

Scott Wright, Ph.D., P.E., CFEI, CVFI

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Professional Profile

Dr. Wright's expertise includes investigation of fires caused by electrical failures and investigation of electrical/electronic products and components that are alleged to have caused fires including structure, wildland, vehicle, and ship fires. He has investigated numerous incidents involving electrocutions and electric shocks and lectures on the topics at Stanford University.

Dr. Wright has extensive electrical experience in power generation, rotating electric machines, solar power generation, inverters, industrial electronic equipment, electrical distribution equipment, and switchgear and is familiar with the obligations and standards in place concerning them.

His electronic system expertise includes circuit, component, and propagating fault failure analysis. Dr. Wright has performed numerous stray voltage investigations including on dairy farms, cable sizing investigations, arc flash analyses, and lithium-ion battery and electronics failure analyses and evaluations. He has conducted Consumer Product Safety Commission (CPSC) product recall investigations and assisted companies manage risk and evaluate product performance claims. He has testified concerning causes of fires, solar panels, building defects, and code compliance. He is also experienced in applying relevant codes and standards including IEEE, IEC, OSHA, UL, ANSI, NFPA, the National Electrical Code (NEC), the National Electrical Safety Code (NESC), the California Fire Code, General Order 95, etc.

He has worked on international arbitrations and performed investigations in 11 countries across 5 continents. During his career at Exponent, Dr. Wright spent over six months overseas in Afghanistan and Jordan developing and refining technology for the United Kingdom Ministry of Defense and training Royal Engineer soldiers and officers. At the University of Michigan, Dr. Wright's research focused on the design and fabrication of electrical circuits and microelectromechanical systems. He developed new microdischarge-based pressure and chemical sensing methods for environmental monitoring in high pressure and high temperature (1,000˚C) environments.

Academic Credentials & Professional Honors

Ph.D., Electrical Engineering, University of Michigan, Ann Arbor, 2009

M.S., Electrical Engineering, University of Michigan, Ann Arbor, 2006

B.S., Electrical Engineering, University of California, Los Angeles (UCLA), 2004

Armed Forces Communications and Electronics Association (AFCEA) Ph.D. Fellow

MIT Lincoln Laboratory Graduate Fellow

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UCLA Engineer of the Year

Eta Kappa Nu

University of Michigan Electrical Engineering Graduate Student Instructor of the Year

Licenses and Certifications

Professional Engineer Electrical, California, #20302

Professional Engineer, Colorado, #PE0050980

Professional Engineer Electrical, Hawaii, #PE-17803

Senior Member of IEEE

40-Hour Hazardous Waste Operation and Emergency Response Certification (HAZWOPER)

8-Hour HAZWOPER Managers and Supervisor Training (CA)

Certified Fire and Explosion Investigator (CFEI)

Certified Vehicle Fire Investigator (CVFI)

Fire Investigation 1A (Cause and Origin), California Office of State Fire Marshal

Academic Appointments

Stanford University, Stanford Engineering, Invited Lecturer

Prior Experience

Founder and Director, Globe Shares Inc., 2009-2019

Research Scientist, Bell Laboratories LGS Innovations, Fall 2008

Graduate Research Assistant, University of Michigan, Department of Electrical Engineering and Computer Science, 2005-2008

Graduate Instructor, University of Michigan, Department of Electrical Engineering and Computer Science, 2004-2005

Test Engineer, Lockheed Martin Space Systems, Summer 2003

Professional Affiliations

International Association of Arson Investigators (IAAI)

IEEE Power Electronics Society (PELS)

IEEE Product Safety Engineering Society (PSES)

Institute of Electrical and Electronics Engineers (IEEE)

Order of the Engineer

National Association of Fire Investigators (NAFI)

National Fire Protection Association (NFPA)

Languages

Spanish

Patents

Patent 8,638,106: Microdischarge-Based Pressure Sensor and Method, 2014 (with Y Gianchandani).

Publications

Morse TL, Sipe, JE, Wright SA. Rooftop Solar Fire Investigation. National Fire Investigator, The Official Publication of NAFI, The National Association of Fire Investigators, May 2019.

Wright SA, Loud JD, Blanchard RA. Globules and Beads: What Do They Indicate About Small-Diameter Copper Conductors That Have Been Through a Fire? Journal of Fire Technology 2015; 51(5):1051-1070.

Wright SA, Harvey HZ, Gianchandani YB. A Microdischarge-Based Deflecting-Cathode Pressure Sensor in a Ceramic Package. IEEE Journal of Microelectromech Systems 2013; 22(1):80-86.

Wright SA, Zipperian HA, Gianchandani YB. A 15 ATM. Pressure Sensor Utilizing Microdischarges in a 1.6 mm3 Ceramic Package. Solid-State Sensors and Actuators Workshop Technical Digest 2010, 53-56.

Gianchandani YB, Wright SA, Eun CK, Wilson CG, Mitra B. Exploring Microdischarges for Portable Sensing Applications. Analytical and Bioanalytical Chemistry 2009, 395(3):559-575.

Wright SA, Gianchandani YB. Contaminant Gas Removal Using Thin-Film Ti Electrode Microdischarges. Applied Physics Letters 2009; 95(11):11504 (1-3).

Wright SA, Gianchandani YB. Discharge-Based Pressure Sensors for High Temperature Applications Using Three-Dimensional and Planar Microstructures. IEEE Journal of Microelectromech Systems 2009; 18(3):736-743.

Wright SA, Gianchandani YB. A Micromachined Quartz and Steel Pressure Sensor Operating up to 1,000ºC and 2,000 Torr. IEEE International Conference on Micro Electro Mechanical Systems Technical Digest 2009, 841-844.

Wright SA. Microdischarge-Based Pressure Controlling Devices and Their Applications to Chemical Sensing in Harsh Environments. Doctoral Dissertation, University of Michigan, 2009.

Wright SA, Gianchandani YB. Microdischarge-Based Pressure Sensors for Operation at 1000ºC. Solid-State Sensors and Actuators Workshop Technical Digest 2008, 332-335.

Wright SA, Gianchandani YB. Controlling Pressure in Microsystem Packages by On-Chip Microdischarges Between Thin Film Titanium Electrodes. Journal of Vacuum Science & Technology B 2007; 25(5):1711-1720.

Wright SA, Gianchandani YB. A Harsh Environment, Multi-Plasma Microsystem With Pressure Sensor, Gas Purifier, and Chemical Detector. IEEE International Conference on Micro Electro Mechanical Systems Technical Digest 2007, 115-118.

Wright SA, Gianchandani YB. A Micromachined Titanium Sputter Ion Pump for Cavity Pressure Control. IEEE International Conference on Micro Electro Mechanical Systems Technical Digest 2006; 754-757.

Presentations and Published Abstracts

Hayes TA, Spray SL, Wright SA, and Barry M. Culprits or Collateral Damage? Lithium-ion Batteries in Fire Investigations, Exponent Live Webinar, 2021.

Wright SA, Parker K. Working Relationship between Origin and Cause and Electrical Engineering, International Association of Arson Investigators (IAAI) Training and Education, 2021.

Wright SA, Parker K. Working Relationship between Origin and Cause and Electrical Engineering Experts, International Association of Arson Investigators-International Training Conference (IAAI-ITC), Online 2020.

Wright SA, Dorenkamp III T. Expert Witnesses in Claims and Litigation. International Symposium on Product Compliance Engineering, San Jose, CA, 2019.

Wright, SA. The Utility of Post-Fire Analysis of Electronic Products and Batteries, Product Liability Advisory Council and the Association of Defense Counsel of Northern California and Nevada Webinar, 2019

Wright SA. The Science of Electric Shock and Electrocution. Guest lecture at Stanford University, Palo Alto, CA, 2014, 2015, 2016, 2018, 2019, 2020, and 2022.

Morse TL, Sipe JE, Wright SA. Rooftop Solar Fire Investigation: International Symposium on Fire Investigation Science and Technology, Itasca, IL, 2018.

Wright SA. Post-Fire Analysis of Electronic Products and Batteries. Northern California Chapter Meeting of the National Association of Subrogation Professionals, Menlo Park, CA, 2014.

Loud JD, Wright SA. Electrical Codes and the Expert Witness. IEEE Industry Applications Society Annual Seminar - Electrical Design and Application, Pleasanton, CA, 2011.

Wright SA, Gianchandani YB. Microdischarge-Based Pressure Sensors Utilizing Multiple Cathodes for Operation up to 1000°C. American Physical Society Gaseous Electronics Conference, Saratoga Springs, NY, 2009.

Project Experience

Solar Farms, Panels, Inverters, and Connectors: Failure analysis, performance evaluation, and testing.

Wire Failure: Causes and potential implications.

Power Strip and Extension Cord: Failure modes and code compliance.

Condominium Fire Investigation

Electrical Switchgear: Arcing and fires.

Vehicle and Ship Fires: Causes and inspections.

Wildland Fires: Cause investigation and data analysis.

Lithium Ion Batteries: Thermal runaway fire investigations and testing.

Lithium Ion Battery Circuitry: Testing, evaluation, and parameter setting.

Stray Voltage Investigations: DC and AC voltages.

Wind Turbines: Alternator evaluations.

Building Defects: Conductor and feeder sizing and safety violations.

CPSC Product Recall: Investigations and risk management.

Electrocution and Shock Evaluations: Drills, connectors, computers, and failed heater.

Ground Penetrating Radar: Technology reviews.