

Exponent®
Engineering & Scientific Consulting

Alex Kattamis, Ph.D., P.E, CFEI, CVFI

Principal Engineer | Electrical Engineering
New York
+1-212-895-8127 | akattamis@exponent.com

Professional Profile

Dr. Kattamis, an electrical engineer with more than 20 years of experience, specializes in conducting electrical engineering analyses relating to a range of electrical products and systems. His expertise spans power generation and distribution systems, industrial and consumer products as well as semiconductor devices. Dr. Kattamis has supported clients for over 15 years by performing engineering and technical forensics and has testified in cases involving product design and failure, fire, electrical and burn injury, and intellectual property (IP).

Semiconductors and Electronic Products

Dr. Kattamis has expertise in the design, fabrication, manufacturing, testing and instrumentation, and failure analysis of semiconductor devices and electronic products including analog and digital circuitry, thin-film electronics, flexible electronics, flash memory and other memory devices, lighting, LEDs, LCDs, AMOLEDs, integrated circuits, GPUs and CPUs, power supplies, and printed circuit boards (PCBs).

Vehicles

Dr. Kattamis has experience with both internal combustion engine (ICE) and electric vehicles (EVs) in the context of electrical testing and firmware review. This has included analyses of engine control units and associated electronics, electronic throttle controls, and air bag systems. Specifically, as it relates to EVs, he has experience in battery pack design and vehicle chargers. Dr. Kattamis is also a Certified Vehicle Fire Investigator (CVFI) with professional training, education, and experience to properly investigate vehicle fires.

Failures, Fires and Injuries

Dr. Kattamis performs root cause analyses of failures, fires and injuries related to industrial and consumer products including power generation, transmission and distribution equipment including solar panels and photovoltaic equipment, generators, transformers, busways, cables, and switchgear. Dr. Kattamis has considerable experience in performing root-cause analysis of fires related to batteries in the context of consumer products, electric vehicles (EVs), and grid-level storage systems (BESS). He possesses knowledge of pertinent electrical codes and standards, including those established by IEC, IEEE, IPC, NEC, NESC, NFPA, OSHA, and UL.

Academic Credentials & Professional Honors

Ph.D., Electrical Engineering, Princeton University, 2007

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M.A., Electrical Engineering, Princeton University, 2004

B.S.E., Electrical Engineering, University of Connecticut, 2002

Licenses and Certifications

Professional Engineer, Alabama, #PE54646

Professional Engineer, Arkansas, #22404

Professional Engineer, Connecticut, #PEN.0034121

Professional Engineer, Florida, #103600

Professional Engineer, Georgia, #PE045381

Professional Engineer, Illinois, #062088902

Professional Engineer Electrical, Louisiana, #PE.0049949

Professional Engineer Electrical, Massachusetts, #55240

Professional Engineer, New Jersey, #24GE05592500

Professional Engineer, New York, #90343

Professional Engineer, Pennsylvania, #PE090289

Professional Engineer Electrical, Rhode Island, #PE.0013344

Professional Engineer Electrical and Computer, Texas, #137167

Professional Engineer, Utah, #14293895-2202

Certified Fire and Explosion Investigator (CFEI)

Certified Vehicle Fire Investigator (CVFI)

Prior Experience

Research Assistant; Princeton University (2002-2007)

Designed and fabricated thin-film transistor backplanes for active-matrix displays. This included the design and implementation of pixel and driver circuits using a-Si and nc-Si materials for active-matrix displays. The fabrication techniques included plasma-enhanced chemical vapor deposition, reactive-ion etching, sputter deposition, wet chemical processing, and photolithography.

Design Engineer; General Electric Industrial Systems (Summer 2001, 2002)

Designed and implemented electronic trip units, power supplies and current sensing systems for metering and switchgear at General Electric – Industrial Systems. This work included analog electronics and PCB design, modeling, and firmware coding.

Adjunct Assistant Professor; Brooklyn Polytechnic Institute (2009-2011)

Taught undergraduate laboratory courses in mechanics.

Professional Affiliations

Institute of Electrical and Electronic Engineers (Senior Member)

National Association of Fire Investigators (NAFI)

National Fire Protection Association (NFPA)

Languages

French (France)

Greek

Publications

A. Z. Kattamis, P. F. Murphy, M. Pooley and A. Soane, "Water Infiltration in Common Residential and Commercial Power Cables Introduced by Capillary Action," 2020 IEEE Symposium on Product Compliance Engineering - (SPCE Portland), Portland, OR, USA, 2020, pp. 1-3, doi: 10.1109/SPCE50045.2020.9296167.

Kattamis AZ, Pooley M. Lightning Protection for Wind Turbines. Exponent Electrical Engineering and Computer Science Newsletter 2017; 6.

Kattamis AZ, Pooley M, Murphy PF. Standards for residential lightning protection systems. Exponent Electrical Engineering and Computer Science Newsletter 2016; 4.

Murphy PF, Kattamis AZ, Souri SJ, D'Andrade BW. Expert Roles in Antitrust Litigation. Mich Defense Quarterly 2017; 33(3).

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D'Andrade BW, Turner G, Kattamis AZ, Saleh M. Reliability of switches that generate current in the grounding conductor. IEEE: Reliability Society 2011 Annual Technical Report, 2011.

D'Andrade B, Kattamis AZ, Murphy PF, McNulty J, Souri S. Arcing enabled by tin whiskers. IEEE: Reliability Society 2010 Annual Technical Report. 2010.

D'Andrade B, Kattamis AZ. Flexible solid state lighting. Optics and Photonics for Advanced Energy Technology, OSA Technical Digest WB4, 2009.

D'Andrade B, Kattamis AZ. Flexible active-matrix organic light emitting displays. Silicon Valley Engineering Council J 2009; 1:18-21.

Hekmatshoar B, Cherenack K, Kattamis AZ, Long K, Wagner S, Sturm JC. Highly stable amorphous-silicon thin-film transistors on clear plastic. Appl Phys Lett 2008; 93:032103-1-3.

Hekmatshoar B, Cherenack K, Long K, Kattamis AZ, Wagner S, Sturm JC. AMOLED reliability with a-Si TFT's in normal vs. inverted TFT/OLED integration scheme. 66th Dev Res Conf 2008; 243-244.

Kattamis AZ, Cherenack KH, Cheng I-C, Long K, Sturm JC, Wagner S. Fracture mechanisms of SiNx thin-films on compliant substrates. Mat Res Soc Symp Proc 2008; 1078-M14-02.

Hekmatshoar B, Kattamis AZ, Cherenack K, Wagner S, Sturm JC. A novel TFT-OLED integration for OLED-independent pixel programming in amorphous-Si AMOLED pixels. J Soc Info Disp 2008; 16.

Hekmatshoar B., Kattamis AZ, Cherenack KH, Long K, Chen J-Z, Wagner S, Sturm JC, Rajan K, Hack M. Reliability of active-matrix organic light-emitting-diode arrays with amorphous silicon thin-film transistor backplanes on clear plastic. IEEE Elec Dev Lett2008; 29.

Yongtaek H, Chung S, Kattamis A, Cheng I-C, Wagner S. Technical issues of stainless steel foil substrates for OLED display applications. Proc. SPIE 2007; 6655:66550N.

Cherenack KH, Kattamis AZ, Hekmatshoar B, Sturm JC, Wagner S. Amorphous-silicon thin-film transistors fabricated at 300C on a free-standing foil substrate of clear plastic. IEEE Elec Dev Lett 2007; 28:1004-1006.

Carcia PF, McLean RS, Reilly MH, Crawford MK, Blanchard EN, Kattamis AZ, Wagner S. A comparison of zinc oxide thin-film transistors on silicon oxide and silicon nitride gate dielectrics. J Appl Phys 2007; 102:074512-074519.

Kattamis AZ, Cherenack KH, Hekmatshoar B, Cheng I-C, Gleskova H, Sturm JC, Wagner S. Effect of SiNx gate dielectric deposition power and temperature on a-Si:H TFT stability. IEEE Elec Dev Lett 2007; 28:606-608.

Long K, Kattamis AK, Cheng I-C, Gleskova H, Wagner S, Sutrm JC. Amorphous-silicon thin-film transistors made at 280°C on clear-plastic substrates by interfacial stress engineering. J Soc Info Disp 2007; 15:167-176.

Kattamis AZ, Giebink N, Cheng I-C, Hong Y, Cannella V, Forrest SR, Wagner S. Active-matrix organic light emitting display employing two thin film transistor a-Si:H Pixels on flexible stainless steel foil. J Soc Info Disp 2006; 15:433-437.

Kattamis AZ, Cheng I-C, Long K, Hekmatshoar B, Cherenack K, Wagner, S, Sturm JC, Venugopal S, Loy DE, O'Rourke SM, Allee DR. Amorphous silicon thin film transistor backplanes deposited at 200ºC on clear plastic. IEEE J Disp Tech 2006; 2:304-308.

Kattamis AZ, Giebink N, Cheng I-C, Hong Y, Cannella V, Forrest SR, Wagner S. AMOLED backplanes of amorphous silicon on steel foils. Proc Inter Disp Res Conf SID 2006; 9.3.

Kattamis AZ, Cheng I-C, Long K, Forrest SR, Sturm JC, Wagner S. Amorphous silicon 2-TFT pixel circuits on stainless steel foils. Mat Res Soc Symp Proc 2006; 936E:0910-A16-03-L09-03.

Long K, Kattamis AZ, Cheng I-C, Sturm JC, Wagner S, Stevenson M, Yu G, O'Reagan M. Active-matrix amorphous-silicon TFTs arrays at 180ºC on clear plastic and glass substrates for organic light-emitting displays. IEEE Trans Elec Dev 2006; 53:1789-1796.

Cheng I-C, Kattamis AZ, Long K, Sturm JC, Wagner S. Self-aligned amorphous-silicon thin-film transistors on clear plastic substrates. IEEE Elec Dev Lett 2006; 27:166-168.

Long K, Kattamis AZ, Cheng I-C, Gleskova H, Wagner S, Sturm JC. Stability of amorphous-silicon thin-film transistors deposited on clear plastic substrates at 250°C to 280°C. IEEE Elec Dev Lett 2006; 27:111-

113.

Kattamis AZ, Holmes RJ, Cheng I-C, Long K, Forrest SR, Sturm JC, Wagner S. High Mobility Nanocrystalline Silicon Transistors on Clear Plastic Substrates. IEEE Elec Dev Lett 2006; 27:49-51.

Kattamis AZ, Cheng I-C, Sturm JC, Wagner S. Nanocrystalline silicon thin film transistors on optically clear polymer foil substrates. Proceedings, Mat Res Soc Symp Proc 2005; 870:H2.7.1-6.

Cheng I-C, Kattamis AZ, Long K, Sturm JC, Wagner S. Stress control for overlay registration in a-Si:H TFTs on flexible organic-polymer-foil substrate. J Soc Info Disp 2005; 13:563-568.

Kattamis AZ, Cheng I-C, Allen S, Wagner S. Hydrogen in ultralow temperature SiO2 for nanocrystalline silicon thin film transistors. Proceedings, Mat Res Soc Symp Proc 2004; 814:I10.14.1-6.

Published Abstracts of Presentations

Kattamis AZ, Cherenack K, Hekmatshoar B, Cheng I-C, Sturm JC, Wagner S. Amorphous silicon thin-film transistor backplanes fabricated on a clear plastic substrate at 300C. 22nd International Conference on Amorphous and Nanocrystalline Semiconductors, 2007.

Kattamis AZ, Cheng I-C, Long K, Cherenack K, Hekmatshoar B, Sturm JC, Wagner S. Amorphous silicon thin-film transistor backplanes deposited at high temperature on clear plastic for electrophoretic displays. Electronic Materials Conference, 2007.

Kattamis AZ, Cheng I-C, Long K, Sturm JC, Wagner S. Effect of SiNx gate dielectric deposition power on the electrical stability of a-Si:H TFTs. Materials Research Society Spring Meeting, 2007.

Kattamis AZ, Hekmatshoar B, Cherenack K, Wagner S, Sturm JC, Venugopal S, Loy DE, O'Rourke SM, Allee DR. Amorphous silicon thin-film transistor backplanes processed at high temperatures on clear plastic for flexible electrophoretic displays. 6th Annual Flexible Display and Microelectronics Conference of USDC, 2007.

Kattamis AZ, Cheng I-C, Long K, Sturm JC, Wagner S. Built-in strain in silicon nitride films on polymer foils. Electronic Materials Conference, 2006.

Kattamis AZ, Giebink N, Cheng I-C, , Hong Y, Cannella V, Forrest SR, Wagner S. AMOLED backplanes of amorphous silicon on steel foils. International Display Research Conference SID 9.3, 2006.

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Presentations

Kattamis A, Murphy PF, Cotts B. Impacts of Extreme Weather Events on Renewable Energy Generation. Webinar. March 24, 2021.

Cotts B, Kattamis A, Murphy PF. Alternative Energy Liability Claims for Solar Installations Large & Small. Webinar. November 11, 2020.

Kattamis AZ, Widin DR. Power interruption. HarrisMartin: Superstorm Sandy Insurance Coverage Litigation Conference, Borgata Hotel, Atlantic City, NJ, June 26, 2013.

Troisi MA, Kattamis AZ. Power Interruption Coverage and Electrical Engineering Issues - Discussion of the Wakefern Case. HarrisMartin: Superstorm Sandy Insurance Coverage Litigation Conference, InterContinental, New York Barclay, New York, NY, Febryary 26, 2013.

Kattamis AZ, Murphy PF. Innovations in backplane electronics for large-area OLEDs. IEEE Long Island Systems, Applications and Technology Conference, Technology Track, Session 3, 2012.