Jason S. Kiddy, Ph.D., PE, CFEI

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AREAS OF EXPERTISE

Mechanical Systems	Product Liability	Premise Liability
Plumbing/Gas Equipment	Warnings and Instructions	Codes and Standards
Heavy Construction Equipment	Manufacturing Processes	Slips, Trips and Falls
High Pressure Systems	Industrial Equipment	Fire Origin and Cause
Hunting Equipment	Construction Defects	Intellectual Property
Aviation/Rotorcraft Systems	Shock and Vibrations	Marine/Navy Vessels
Electro-Optics and Optical Sensing	Design Verification Testing	Failure Analysis

ACADEMIC BACKGROUND

Doctor of Philosophy in Aerospace Engineering, University of Maryland, College Park, August 1999
Dissertation Title: A Modal-Based Damage Detection Technique for Helicopter Rotor Blades

Master of Science in Mechanical Engineering, University of Maryland, College Park, May 1997

Bachelor of Science in Mechanical Engineering, University of Maryland, College Park, May 1995
Summa Cum Laude, Highest G.P.A. in graduating class (4.0)

Bachelor of Science in Physics, Frostburg State University, May 1994

REGISTRATIONS AND CERTIFICATES

Registered Professional Engineer; State of Delaware (25979), District of Columbia (PE923207), State of Florida (92622), State of Maryland (56355), State of Texas (141130), Commonwealth of Virginia (0402063026)

Certified Fire and Explosion Investigator, NAFI Number: 25209-14370

Powered Access License, Mobile Vertical (3a) and Mobile Boom (3b), IPAF Certificate Number: AOP/0017260

Remote Pilot, Small Unmanned Aircraft System, FAA Certificate Number: 4507270

30-Hour General Industry Safety and Health, OSHA, Number: 26-907318211

10-Hour General Industry Safety and Health, OSHA, Number: 26-707311471

Certified Crossbow Hunter Education Instructor, National Bowhunter Education Foundation

PROFESSIONAL EXPERIENCE

Aither Forensic Engineering, LLC
Principal Mechanical Engineer
2020 – Present Founder, president, and principal engineer of forensic engineering and expert witness firm.

Beacon Scientific, LLC
Principal Mechanical Engineer
2016 – 2020 Responsible for leading and supporting litigation and intellectual property matters. Investigated over 200 matters and authored/co-authored over 90 engineering reports. Had overall responsibility for the day-to-day operation of the company including facilities, finances, human resources, business development, legal, and administrative duties.

Weatherford (acquired Aither Engineering, Inc.)
Product Line Engineering Manager – Optical Sensing Systems
2011 – 2017 Responsible for all engineering activities within the optical sensing systems product line including new product development, engineering support for existing products, manufacturing, and long-range R&D. Product line consisted of downhole fiber optic pressure sensors, temperature sensors, flowmeters, and seismic systems designed to operate in extremely harsh conditions. Managed product line intellectual portfolio consisting of 300+ patents.

Aither Engineering, Inc. (spin-off from SPA)
President
2006 – 2011 Engineering research and development firm focused on optical sensors for extremely harsh environments, particularly for the oil and gas industry and U.S. military. Responsible for all aspects of the company's operation including engineering, financial, business development, administrative, human resources, and legal/intellectual property.

Systems Planning and Analysis, Inc.
Director – Advanced Engineering Development Program
2002 – 2006 Advanced research and development for a wide range of technologies and application areas including structural health monitoring, damage detection, and optical sensing for various applications. Projects include design verification testing of ship and submarine hulls, developing a damage assessment system for Navy vessels, and towed sonar array design, fabrication, and testing. Responsible for the day-to-day management of the group including technical performance, business development, staffing and budgeting.

Senior Research Engineer
1999 – 2002 Performed as a key technical team member responsible for project management and individual technical contributions in the fields of optical sensing and testing, structural health monitoring, vibrations and modal analysis for various applications. Projects include the design, fabrication, and testing of towed sonar arrays, stress monitoring of Navy vessel hulls, and the development of shock and vibration sensors for shipborne use.

Alfred Gessow Rotorcraft Center, Aerospace Engineering, University of Maryland, College Park
Graduate/Rotorcraft Fellow
1996 – 1999 Graduate research into the feasibility of the detection of incipient damage in helicopter rotor blades using vibration analysis.

PATENTS

Pressure Sensor Arrangement Using an Optical Fiber and Methodologies for Performing an Analysis of a Subterranean Formation
US 9,347,312 B2 (CA 2790841C)
US 10,246,989 B2 (CA 2791241A1)
US 10,837,274 (CA 2744734C)

Time Division Multiplexing (TDM) and Wavelength Division Multiplexing (WDM) Sensor Arrays
US 9,389,174 B2 (CA 2952423C, GB 2542730B, RU 2665743C2)

Apparatus and Methods for Cemented Multi-Zone Completions
US 9,926,783 (EP 3019692B1, EP 3346091B1, CA 2917550C, DK 3019692T3)
US 10,590,767 (EP 3633140B1, CA 3036180C, DK 3346091T3, DK 3633140T3)

Optical Fiber Coating to Reduce Frication and Static Charge
US 10,173,286

Fiber Optic Cable for Inhibiting Breaching Fluid Flow
US 10,338,336 B1
US 10,527,812
WO2019135885A1 (Pending)

CONTINUING EDUCATION CLASSES AND SEMINARS

OSHA Stairways and Ladders (2020)
Using Warnings and Instructions to Increase Safety and Reduce Liability (2019)
Maryland Natural Resources Police Hunter Education Program (2018)
Certified Aerial Work Platform Operator (2018)
Certified Rough Terrain Fork Lift Operator (2018)
Electrical Measurement Safety Program (2017)
Certified Crossbow Instructor (2017)
IADC RigPass (2012)
Hydraulic and Pneumatic Safety (2011)
Laser Safety (2011)
Transportation of Dangerous Goods (2010)
H2S Alive (2010)
Personal Survival Techniques (2002)

ASSOCIATION MEMBERSHIPS

American Society of Mechanical Engineers (ASME)
American Society of Safety Professionals (ASSP)
National Association of Fire Investigators (NAFI)
National Fire Protection Association (NFPA)

SELECTED TECHNICAL PUBLICATIONS

Brandon, J.M., Simon, J.M., Owens, D.B., and Kiddy, J.S., "Free-Flight Investigation of Forebody Blowing for Stability and Control," Atmospheric Flight Mechanics Conference, July 29-31, 1996, San Diego, CA.

Kiddy, J.S. and Pines, D.J., "Damage Detection of Main Rotor Faults Using a Sensitivity Based Approach", SPIE Smart Structures and Materials Conference, March 3-6, 1997, San Diego, CA.

Kiddy, J.S. and Pines, D.J., "Constrained Damage Detection Technique for Simultaneously Updating Mass and Stiffness Matrices", AIAA Journal, Vol. 36, No. 7, 1998, pp. 1332-1334.

Kiddy, J.S. and Pines, D.J., "An Eigenstructure Assignment Technique for Damage Detection in Rotating Structures", AIAA Journal, Vol. 36, No. 9, 1998, pp. 1680-1685.

Kiddy, J.S. and Pines, D.J., "The Effects of Aerodynamics Damping on Damage Detection in Helicopter Main Rotor Blades", Proceedings of the 58th Annual Forum of the American Helicopter Society, May 25- 27, 1999, Montreal, Canada.

Kiddy, J.S., Chen, P.C., Niemczuk, J., DeVoe, D., and Kiger, K., "Active Flow Control Using Microelectromechanical Systems," AIAA-2000- 1561, AIAA/ASME/AHS Adaptive Structures Forum, April 3-6, 2000, Atlanta, GA.

Kiddy, J.S., Chen, P.C., and Ross, P., "Ship Health Monitoring," Encyclopedia of Smart Materials", John Wiley & Sons, Inc. New York, NY, 2000.

Kiddy, J.S., and Pines, D.J., "Experimental Validation of a Damage Detection Technique for Helicopter Main Rotor Blades," Proceedings of the Institution of Mechanical Engineers, Part I: Journal of Systems and Control Engineering, Vol. 215, No. 3, 2001.

Kiddy, J.S., Niemczuk, J.B., and Chen, P.C., "Low-Cost Inflatable Lighter-than-Air Remote Surveillance System", in Enabling Technologies for Law Enforcement and Security, Proceedings of SPIE Vol. 4232, Bellingham, WA, 2001, pp. 244-251.

Kiddy, J.S., Chen, P.C., and Niemczuk, J.B., "Temperature-Compensated Flat-Pack Fiber Optic Strain Gage: Design and Fabrication", in Smart Structures and Materials 2001: Smart Structures and Integrated Systems, Proceedings of SPIE Vol. 4327, Bellingham, WA, 2001, pp. 651-659.

Christiansen, M.B., Kiddy, J.S., et al., "Digital Spatial Wavelength Domain Multiplexing (DSWDM) Using a Prism-Grating-Prism (PGP) and a CMOS Imager: Implementation and Initial Testing", in Smart Structures and Materials 2001: Sensory Phenomena and Measurement Instrumentation for Smart Structures and Materials, Proceedings of SPIE Vol. 4328, Bellingham, WA, 2001, pp. 88-95.

Baldwin, C.S., Kiddy, J.S., et al., "Structural Testing of a Navy LPD-17 Propulsion Propeller Using Bragg Grating Sensors and Digital Spatial Wavelength Domain Multiplexing (DSWDM)", in Smart Structures and Materials 2001: Industrial and Commercial Applications of Smart Structures Technologies, Proceedings of SPIE Vol. 4332, Bellingham, WA, 2001, pp. 124-132.

Baldwin, C.S., et al., "Structural Testing of Navy Vessels Using Bragg Gratings and a Prototype Digital Spatial Wavelength Domain Multiplexing (DSWDM) System," Naval Engineers Journal, Vol. 114, pp. 63-70, January 2002.

Baldwin, C.S., et al, "Structural Monitoring of Composite Marine Piles Using Multiplexed Fiber Bragg Grating Sensors: in-field applications", in Smart Structures and Materials 2002: Smart Systems for Bridges, Structures, and Highways, Proceedings of SPIE Vol. 4696, Bellingham, WA, 2002, pp. 82-91.

Kiddy, J.S., et al., "Structural Load Monitoring of the RV Triton Using Fiber Optic Sensors", in Smart Structures and Materials 2002: Industrial and Commercial Applications of Smart Structures Technologies, Proceedings of SPIE Vol. 4698 (SPIE, Bellingham, WA 2002), pp. 462-472.

Kiddy, J.S., et al., "Low-Cost Light-Than-Air Surveillance System for Civilian Applications," Sensors and Command, Control, Communications, and Intelligence (C3I) Technologies for Homeland Defense and Law Enforcement, Proceedings of SPIE Vol. 4708, 2002, Bellingham, WA, 2002.

Baldwin, C.S., et al., "Fiber Optic Structural Health Monitoring System: Rough Sea Trials Testing of the RV Triton," Proceedings of MTS/IEEE Oceans Conference and Exposition, 2002, Vol. 3, pp. 1806-1813.

Morel-Fatio, S., Pines, D.J., Kiddy, J.S., "UAV Performance Enhancements with Piezoelectric Synthetic Jet Actuators," 41st Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan. 6-9, 2003.

Kiddy, J.S., "Remaining Useful Life Prediction Based on Known Usage Data", in Nondestructive Evaluation and Health Monitoring of Aerospace Materials and Composites II, Proc. of SPIE Vol. 5046, Bellingham, WA, 2003, pp. 11-18.

Baldwin, C.S., Salter, T.J., Kiddy, J.S., "Static Shape Measurements Using a Multiplexed Fiber Bragg Grating Sensor System", in Smart Structures and Materials 2004: Smart Sensor Technology and Measurement Systems, Proceedings of SPIE Vol. 5384, Bellingham, WA, 2004, pp. 206-217.

Kiddy, J.S., Baldwin, C.S., Salter, T.J. "Certification of a Submarine Design Using Fiber Bragg Grating Sensors", in Smart Structures and Materials 2004: Industrial and Commercial Applications of Smart Structures Technologies, Proceedings of SPIE Vol. 5388, Bellingham, WA, 2004, pp. 387-398.

Todd, M., et al., "Towards Deployment of a Fiber Optic Smart Tether for Relative Localization of Towed Bodies," Proceedings of the 2005 SEM Annual Conference and Exposition on Experimental and Applied Mechanics, pp. 1801-1810.

Kiddy, J.S., et al., "Fiber Optic Damage Assessment System," Proceedings of the Photonics Applications Systems Technologies Conference, Baltimore, MD, May 2005.

Kiddy, J.S., Baldwin, C.S., Salter, T.J., "Hydrostatic Testing of a Manned Underwater Vehicle Using Fiber Optic Sensors," Proceedings of MTS/IEEE Oceans Conference and Exposition, Vol. 2, September 2005, pp. 1876-1881.

Kiddy, J.S., Baldwin, C.S., Salter, T.J., "Submarine Certification Test Using Fiber Optic Sensors," Sea Technology, Vol. 47 (12), December 2006.

Baldwin, C.S., Kiddy, J.S., et al., "Fiber Optic Sensors Monitoring Transmission Ring Gears", in Photonics in the Transportation Industry: Auto to Aerospace, Proceedings of SPIE Vol. 6758 (SPIE, Bellingham, WA 2007).

Coker, J.D., Pines, D.J., Kiddy, J.S., "Fiber Optic Strain Sensor Vibration Separation for Detection of Seeded Faults in Rotorcraft Transmissions," Proceedings of the ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems (Ellicott City, MD 2008).

Kiddy, Jason S., David G. Lewicki, Kelsen E. LaBerge, Ryan T. Ehinger and Jason Fetty. "Fiber Optic Strain Sensor for Planetary Gear Diagnostics", American Helicopter Society 67th Annual Forum (Virginia Beach, VA 2011).

Baldwin, C.S., Kiddy, J.S., and Samuel, P.D., "Towards Development of a Fiber Optic-Based Transmission Monitoring System", in Photonic Applications for Aerospace, Transportation, and Harsh Environment II, Proceedings of SPIE Vol. 8026 (SPIE, Bellingham, WA 2011).

Engel, Thomas W., Christopher Baldwin, John J. Grunbeck, Jason S. Kiddy, Kaj Stokkeland. "Improving Well Integrity in Permanent Downhole Monitoring Systems", Offshore Technology Conference (Houston, TX 2014).