



**Johannes C. Laun, P.E., IAAI-CFI, MIFireE**

**Senior Engineer**

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2009-Present **Professional Analysis and Consulting, Inc. – Lisle, Illinois**

Responsible for engineering investigations including electrical engineering, materials engineering, origin and cause, and fire investigations for numerous areas including:

- **Alternative energy:** Including solar panels, wind power, battery backup systems, fuel cells, and associated technologies for power conversion and management. Issues including fires, failures, voltages, design, and compatibility.
- **Antennas and electromagnetics:** Cell towers, antenna and communication issues, signal propagation, analysis, and testing from DC to microwave signals.
- **Battery technologies:** Including lead acid, lithium ion, Nickel-Air, Nickel-Cadmium, etc. Failures including fractures, fires and explosions, spillage, short and open circuits, battery management, charging and conditioning, etc. Use of batteries in vehicles, backup power, consumer products, medical devices, etc.
- **Construction:** Experience with general construction for a variety of trades in residential and commercial construction. Issues have included construction defects, methods and practice, codes, OSHA, MSHA, fire suppression & sprinklers, lighting, safety systems, PPE, etc.
- **Copper and Aluminum/fiber cable systems:** Failures and issues regarding electrical power distribution cables and wires, signal cables (coaxial, triaxial, small signal and power), fiber optic systems, repair, and splicing, etc. Cables from small signal to interstate power distribution on towers.
- **Electric shock and electrocution:** Analysis of circumstances, nature of injuries, current path and levels, sources of current, etc. Have assisted in determining if injuries are from an electrical source. Have modeled impedances in the human body for current path analysis.
- **Medical Products:** Peristaltic pumps, medical monitoring systems, cautery instruments, cancer treatment and surgical devices, etc. Provided assistance in medical instrument design.

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- **Motors and power conversion:** Analysis of failures in motors and generators from fractional horsepower to multi-thousand horsepower units of all designs and types.
- **Patents:** Patent defense and litigation for numerous areas including motors, antennas, communication, batteries, consumer products, etc.
- **Product failure analysis:** Consumer and commercial product failures for production lines and field issues, CPSC issues, fires, etc.
- **Semiconductors and electronic materials:** Including group III-V (GaAs, AlGaAs, etc.) and group IV (Si), processing, metallization, lithography, crystal growth, test and measurement, for digital, optical, microwave, etc.
- **Surface analysis, Non-destructive and destructive testing:** Experience with electron microscopy (both SEM and TEM), EDS, ESCA, SIMS, Auger and Scanning Auger, Raman, Photoluminescence, Atomic Absorption, ICP-MS, various mass spectroscopy techniques, FTIR, X-Ray and radiographic techniques, and many more.
- **Transformers, switchgear, power distribution:** Including all aspects of electrical power distribution from generators to household circuit breakers, fuses, coordination, etc. Voltage levels up to 750KV. Experience from DC to multi-phase power systems including specialized research designs.

2004-2009     **Packer Engineering, Inc. - Naperville, Illinois**

Provided engineering consultation regarding origin and cause in electrical and electronic areas including antennas and electromagnetics, power distribution and transformers, computers, battery technologies, semiconductors, electronic materials, and electrical fires. Also involved in product analysis and testing, and production line failure analysis.

1997-2004     **Amset Engineering, Inc. - Wheeling, Illinois**

Responsible for forensic engineering, origin and cause, project management, and cost analysis for the insurance community. Provided a wide range of technical support with emphasis on electrical and electronic aspects of claims. Experience with electrical and electronics, materials and chemical, telephone, computers and data, HVAC, boilers and machinery, heavy equipment, furnaces, etc. Extensive experience with equipment restoration following fires, floods and other exposures, especially electrical and electronic equipment.

1994-1997     **Genesis Magnetics Corp. – Boulder, Colorado**

Chief Technical and Financial Officer for this startup company developing electromagnetic cancellation technology. Developed U.S. and international patents with regard to this technology and pursued various markets.

1988-1991 **Bandgap Technology Corporation – Broomfield, Colorado**

Responsible for Molecular Beam Epitaxy (MBE) of III-V semiconductor materials, materials testing, and processing. Responsible for RandD MBE crystal growth and developed this into a production pilot line. Was responsible for selection, purchase, setup, and operation of production MBE systems and GaAs wafer processing equipment. Wrote business proposals and financial forecasts. Was additionally involved with customer contacts, materials specifications, and quality control.

1984-1988 **Gould Research Center - Rolling Meadows, Illinois**

Performed research and development work with MBE crystal growth on III-V semiconductors. Designed and fabricated new devices and techniques with MBE. Team member of group that developed the first commercial HEMT transistor.

## **ACADEMIC**

- M.B.A. University of Colorado at Boulder - Technology Management (1994)
- M.S. University of Illinois at Chicago - Physics (1984)
- B.S.E.E. University of Illinois at Chicago - Electromagnetics and Antennas (1981)

## **PROFESSIONAL REGISTRATION AND AFFILIATIONS**

### **LICENSES**

- Professional Engineer in Illinois (062-057157)
- Professional Engineer in Florida (65382)
- Professional Engineer in Ohio (72528)
- Professional Engineer in West Virginia (17675)
- Professional Engineer in Arkansas (14619)
- Professional Engineer in South Carolina (32586)
- Private Detective in Illinois (115-002128)
- Amateur Radio Operator (WB9STI)
- United States Council for International Engineering Practice (USCIEP) (26920)
- Illinois Home Inspector (License No.: 450.011803)

### **CERTIFICATIONS:**

- HAZWOPER 40 Hour Certification for emergency response at all levels
- Certified Fire Investigator (IAAI-CFI) Registration No.: 12-100807
- ProBoard Certified Fire Investigator
- Fire Engineer – MIFireE designation – Institute of Fire Engineers
- OSHA 30 Hour Outreach Training Program – Construction
- Operator Safety Training Program – OSHA, Forklift Class IV and V
- NRA – Range Safety Officer
- NRA – Certified Pistol Instructor

## **AFFILIATIONS**

National Fire Protection Association (NFPA)  
National Association of Fire Investigators (NAFI)  
Institute of Electrical and Electronics Engineers (IEEE)  
International Association of Arson Investigators (IAAI)  
Western Loss Association  
Blue Goose, Greater Chicago Pond  
Member - Institute of Fire Engineers (IFE)

## **LECTURES AND INVITED PRESENTATIONS**

Laun, J.C., "Lightning and Grounding", DRI Product Liability Conference, February, 2007.  
Laun, J.C., "Forensic Electrical Engineering", Northwestern University, March, 2006.  
Laun, J.C., "Forensic Electrical Engineering", Case New Holland (CNH) Equipment, February, 2005.