**Robert Saethre**

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**SUMMARY** Project Manager and Electrical Engineer with over 30 years’ experience in management, design, product development and operations of accelerator and electrical power conversion systems for industry and governmental institutions. Led cross functional teams to evaluate, develop and manage projects for new product development and ongoing lifecycle management of products. Managed core teams to plan and execute programs predictably achieving cost, schedule, quality, and technical goals. Collaborated internally with the cross functional organizations including Mechanical Systems, Physics, Finance, Operations, and Quality Assurance and externally with customers, vendors, Universities and National Laboratories. Communicated thorough timely updates to all levels of the organization. Responsible for staffing, budgets, leadership of research and development, product development, and process improvement projects. Experienced in converting conceptual designs into commercial products. Extensive skills in engineering design and test, troubleshooting, failure analysis, personnel management, budget planning/reporting, procurement specifications, technical bid development and safety analysis. Presented numerous oral and invited technical papers at professional conferences.

**EXPERIENCE**

11/20 – present **Oak Ridge National Lab** Oak Ridge, TN

**Project Director, Asset Management**… leading the transformation the Spallation Neutron Source (SNS) facility maintenance processes and tools. These processes and tools are focused on applying enterprise asset management techniques during planning, integration, and operation of the planned maintenance outages with a goal of optimizing limited resources. Responsible for setting project goals, implementation, planning, and scheduling.

6/19 – 11/20 **Oak Ridge National Lab** Oak Ridge, TN

**Group Leader Electrical Systems & Operations**… Responsible for operation, technology development, implementation, planning, and scheduling of accelerator, target, and instrument electrical technical equipment. Led group of 39 engineers, scientists, technicians, and support craft. Set group member goals and objectives and ensured these aligned with top level goals.

1/10 – 6/19 **Oak Ridge National Lab** Oak Ridge, TN

**Sr. Power Systems Engineer** … Team Lead Engineer for kicker modulators, beam chopper pulsers, magnet power supply systems and special projects for linear accelerator. Responsible for daily 24/7operations of magnet systems, technology research and development, implementation, planning, and scheduling. Developed new power converter which saved the Proton Power Upgrade project $4.7M.

2018 – present **2020/2022** **IEEE International Power Modulator Conference** Knoxville, TN

 **General Chair** ... Managing co-located IPMHVC and EIC conference programs. Negotiated hotel, convention center, social event, catering, bussing, and AV contracts. Recruited local organizing committee and conference chair positions. Also serving on the Executive Committee for future conferences.

 2018 IEEE International Power Modulator Conference Jackson, WY

 Technical Program Chair ... Coordinated conference technical program, managed review committee, and published proceedings.

 2014 and 2016 IEEE International Power Modulator Conference Santé Fe, NM

 Student Awards and Travel Chair ... Solicited nominees, San Francisco, CA

 formed review committee, selected and awarded winners.

 2012 IEEE International Power Modulator Conference Monterey, CA

 Publicity Chair ... Coordinated conference publicity and designed, maintained and administered of conference website. Produced conference publicity video and fliers.

3/05 – 1/10 **Cymer, Inc** San Diego, CA

 **Sr. Electrical Engineer** … Lead Responsible Engineer for pulsed power systems of excimer laser development for flat panel display annealing. Responsible for technology development, implementation, planning, budget and schedule in a fast development cycle. Led cross functional teams to evaluate, develop and manage projects through the phase gate development process for new products and lifecycles. Accountable for overall program execution. Led engineering design development.

2/04 – 2/05 **Archimedes Technologies Group** San Diego, CA

 **Sr. Electrical Engineer** … research, development, design, procurement, fabrication, test and analysis of high-power converter systems for Plasma Mass Filter. This venture capital funded startup created a system for processing waste from nuclear processes before loss of funding.

11/99 – 2/04 **Cymer, Inc** San Diego, CA

 **Sr. Electrical Engineer** … research, development, design, procurement, fabrication, test and analysis of pulsed power systems for excimer lasers used in semiconductor photolithography processes. Supported domestic and international customers with remote and onsite analysis and troubleshooting.

1/96 – 11/99 **12th** **IEEE Pulsed Power Conference 1999** Monterey, CA

 **WebMaster** ... design, layout, maintenance and administration of conference website, registration and author databases.

6/87– 11/99 **Holmes & Narver, Inc./ Raytheon Services Nevada/ Bechtel Nevada** Las Vegas, NV

 Project Electrical Engineer ... design and testing of high-speed, high-power solid state Advanced Radiographic Modulator. Designed and tested fiber optic cables and fiber optic systems. Budget tracking and planning for Scientific Cable design group.

# SKILLS

 Management Lead group of 40 engineers, technicians, and craft to support the electrical systems of the SNS accelerator, target, and instrument systems. Managed strategic hiring, budget, and resources. Set short- and long-term group goals. Ensured high reliability of Group’s technical equipment responsibilities. Managed personnel performance, career development, and training to ensure focused progress towards ORNL objectives.

 Engineering Designed and developed improvements for high speed, high voltage pulsers and modulators, dc power supplies. Developed test methods for improving diagnostic systems for SCR and IGBT based power supplies.

Designed and implemented an automated test bed to validate Pulsed Power system without need of full running laser, saving Cymer $1.5M and 1 year of development. Designed both the hardware and firmware of FPGA based controller to fully automate control and diagnostics of the Electrode Power System. Discovered root cause of IGBT failures and instabilities in DSP controlled Power Converter. Redesigned IGBT driver and snubber circuits to reduce hard switching noise.

 Designed IGBT and saturable reactor switch based pulsed power systems for excimer lasers. Designed low voltage control circuitry for triggering, diagnostic and interlocking high voltage modules within the pulsed power system. Designed packaging to meet performance, reliability, cost, manufacturability and international compliance requirements. Created and maintained specifications, bills of materials, engineering change orders and service documentation.

 Designed analog solid-state MOSFET driver for high power accelerator beam kicker. Designed IGBT based regulated pulsed current driver for a copper steering magnet. Developed optical trigger link for solid state modulator, optical diagnostic technique for measuring high current and high voltage, optical method of supplying electrical power, radiation effects test of ARM circuit boards. Designed 400 MHz analog fiber optic link, an electrically isolated high current monitor, and a high voltage probe.

 Project Lead Engineer for design of Pulsed Power modules development from breadboard

 Management stage through product release. Lead design of entire pulsed power chain from wall power up to chamber input. Led design team for Electro-optic systems. Performed candidate search and Interviewing of new team members. Planned and tracked multimillion-dollar budgets for multiple projects.

 Testing Developed automated methods for collecting voltage, current and temperature data from Electrode Power System. Developed automated test program to decrease manufacturing test time and increase repeatability of performance data. Developed field service procedures for diagnosing and mitigation of failures of pulsed power modules and subsystems. Designed and performed X-ray radiation testing involving coordination with accelerator operators, physicists, engineers, technicians, and safety personnel.

**EDUCATION**

 1983-1987 North Dakota STATE UNIVERSITY B.S.E.E.Fargo, ND

**Registrations** Professional Engineer (PE) State of Nevada, 1994. Expired

**Publications** [**https://orcid.org/0000-0002-7907-3960**](https://orcid.org/0000-0002-7907-3960)

**Affiliations**  Member Institute of Electrical and Electronic Engineers (IEEE), Dielectric and Electrical Insulation Society (DEIS), Power & Energy Society (PES), Power Electronics Society (PELS)

**Patents** 4 kHz Gas Discharge Laser System, Method and Apparatus for Electronically Interconnecting High Voltage Modules Positioned in Relatively Close Proximity, Method and Apparatus for Cooling Magnetic Circuit Elements

**Awards** R&D 100 Award winner 1999 for “Solid-State Power Source for Advanced Accelerators and Industrial Applications” <http://www.llnl.gov/str/Kirbie.html>

**Additional** U.S. Citizen. U.S. DOE “**Q**” cleared 1988 - 1999.