

Optical Engineer

Expertise:

- ❑ High power / low noise single frequency lasers
- ❑ Laser manufacturing processes
- ❑ Low-noise optical metrology and detection
- ❑ General optical design

Additional skills:

- ❑ Mechanical design (SolidWorks)
- ❑ Modeling of laser physics (MatLab)
- ❑ Optical design and laboratory technique
- ❑ LabVIEW, including real-time and FPGA



Experience:

2016 to Present: Independent optical engineer, and contract engineer for Gener8 (Gener8.net). Supplier of NPRO laser crystals to commercial and government customers. Self-funded developer of lasers for LIDAR.

2009-2016: One of three partners in FASORtronics LLC, dedicated to the design of high-power single frequency lasers for astronomy and other applications.

2007-2009: Visiting Scientist at Ginzton Laboratory, Stanford University.

2005-2007: Optical Engineering Manager, JDSU Commercial Lasers, now Lumentum. When Lightwave Electronics was purchased by JDSU in 2005, the laser engineering groups were merged. I managed the combined group of 15 optical engineers. Active projects included a frequency-doubled diode laser and a high-power Q-switched 355-nm laser.

1986-2005: Co-founder and laser engineer for Lightwave Electronics, one of the first diode-pumped solid-state laser manufacturers. Led the development of Lightwave Electronics' NPRO single-frequency laser product line. Was the principal investigator responsible for the development of the 10-Watt single-frequency lasers used in NSF's Laser Interferometric Gravitational Observatory (LIGO). Led a team that designed and produced space-qualified lasers for NASA. Technical leader for group which successfully generated 3 Watts of blue, based on a pulsed neodymium fiber laser.

Patents:

Twenty issued patents, all in laser technology.

Education:

University of California at Davis: BS Physics, 1978.

Stanford University: Ph.D. Electrical Engineering, 1986. Thesis: "Coherent Laser Radar at 1.06 μm using Solid State Lasers," Prof. Robert L. Byer, advisor. Included invention and demonstration of the "NPRO" design for a single-frequency laser, and modeling and demonstration of zigzag slab lasers.