

Advancing Laser Innovation from Deep Sea to Space



Laser Innovation . . .

Pressing the Boundaries

At Q-Peak our experienced staff in Solid State Lasers, Fiber Lasers, Ultrafast Lasers, Non-linear Optics, and Fiber Components will focus on your specific laser requirements to develop an optimal laser architecture for your application. . . Call Us to discuss your needs!

Q-Peak's blue-green laser systems



Image: US Navy

Laser Technology Transition. . .

Annually, Q-Peak competes for and receives multiple US Small Business Innovative Research contract funded projects designed for dual use applications in multiple commercial industries such as Medical and Materials Processing.



Q-Peak's Moonbow LIBS laser designed for the MARS rover mission - Dual Use for medical applications

Areas of Application

- Aerospace and Defense
- Medical Lasers
- Materials Processing
- Space Missions
- Scientific Research
- Laser Communications
- Sensors and Instruments

Solid State Lasers

Q-Peak's focus on solid-state lasers spans our entire 30+ year history, with significant developments across all areas of laser performance: CW to ps, UV to LWIR, single-shot to GHz, μJ to J's, and mWs to 100s of Watts.



Compact Pulsed Laser
1-10 mJ, <10 nsec
532, 1064, 15xx nm
Moonbow GR, IR, ES



High Power Illumination Eyesafe Laser
10 mJ, 100s Hz, 15xx nm, 15 nsec
Aurora E1516



High Power LADAR
25 W, 20 kHz, <1 nsec
Nd:YVO₄ MOPA
Aurora E2520

Capabilities

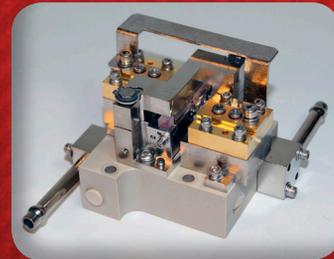
- Lasers based on Nd:YAG, YLF, YVO4 / Er:YAG, YLF / Ho:YAG, YLF / Tm:YLF / Yb:YAG.
- Hybrid fiber/solid-state systems
- Nonlinear frequency conversion via harmonic/parametric generation
- Compact, Efficient and Ruggedized laser components and system hardware



Compact family of Q-switch UV, Green, NIR, and Eyesafe Lasers



Compact High PRF Short Pulse Oscillator



Multipass Slab Gain Module

Fiber Lasers

Q-Peak offers a variety of 1- μm oscillator and amplifier platforms.

The 1- μm platforms concentrate on quasi-CW, variable repetition rate, picosecond oscillators and amplifiers to generate high average powers and narrow bandwidths without the complexity and cost of mode-locking.



Firebow 1- μm Fiber Laser

CW and Tunable 2- μm Fiber Lasers

Q-Peak provides a host of state-of-the-art fiber laser platforms operating in the 2- μm wavelength region. These offer unique capabilities in chemical sensing, laser surgery, atmospheric spectroscopy, and materials processing. CW powers ranging from 10 to 500 Watts.



Firebow 2- μm Tunable Fiber Laser

The 2- μm platforms offer fixed frequency (~1960-2060 nm), single frequency within this same range (SBS free) and continuous tuning between 1960 – 2050 nm in CW or mode-locked formats based on high efficiency, 793-nm laser diode pumping. High power amplifiers complement the oscillators in all pulse formats.

Ultrafast Lasers

Q-Peak has developed ultrafast laser technologies utilizing novel gain materials, including Yb:KYW ($\lambda = 1040$ nm) and Cr:ZnSe ($\lambda = 2500$ nm), for use in research and materials processing environments.

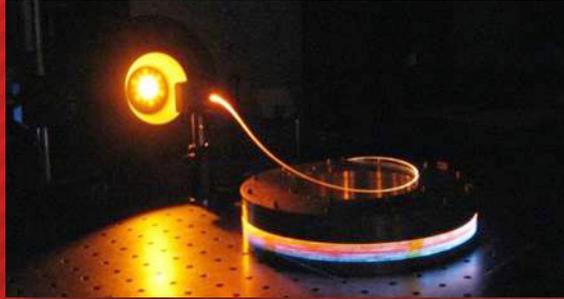


Q-Peak's diode-pumped Cr:ZnSe ultrafast oscillator
<100 fs pulses at 100 MHz , Anthelion CR185

Capabilities

- High repetition rate ultrafast oscillators
- Regenerative amplifiers for high peak power
- Pulse stretching and compression
- Parametric chirped-pulse amplification
- UV through IR nonlinear conversion
- Custom laser system design

Non-Linear Optics



Q-Peak offers access to wavelength ranges from the ultraviolet to the long-wave infrared through SHG, OPG/OPA, OPO, DFG, Raman shifting, and supercontinuum generation. Large tuning ranges are available when pairing quasi-phase-matched nonlinear crystals (PPLN, OP-GaAs) with Q-Peak's tunable pump lasers.

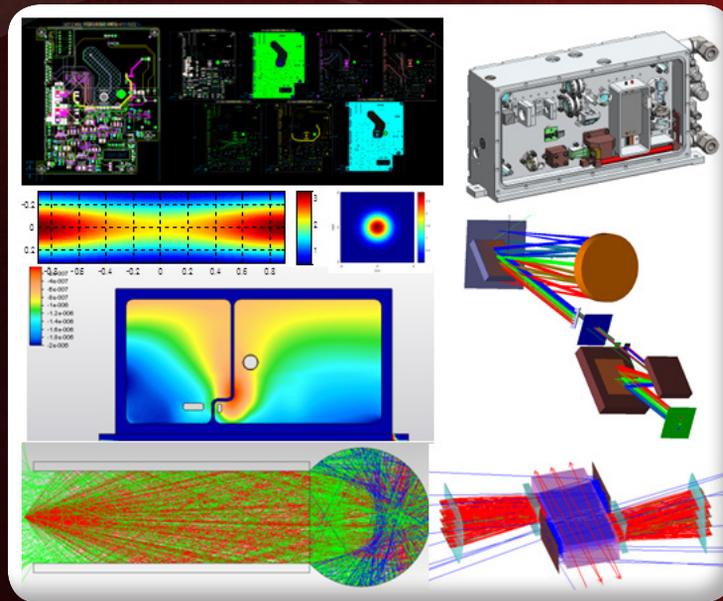
Fiber Components



Q-Peak offers a variety of high power fiber components such as pump-signal combiners for both co- and counter-pumped lasers, taps, custom wavelength WDM, mode-filled adaptors, pump-dumps, cladding-mode strippers, end caps, etc.

Engineering Design Capability

Q-Peak provides extensive engineering design capabilities for a broad range of laser applications. We utilize a host of theoretical laser physics modeling, optical software packages, as well as established software platforms for electrical, thermal, and mechanical design.





People / Facility

- Comprehensive Staff of well published PhD Laser Physicists and Product Engineers
- Located in the Boston, MA High Technology Region
- Q-Peak has over 17,000 sq. ft. of office, laboratory, and manufacturing space to service multiple programs
- DoD secure facility for defense applications
- Cleanroom area for critical high power laser manufacturing

Customer Focused

Experienced Staff

Laser Driven Innovation

Contact Q-Peak Today!



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