

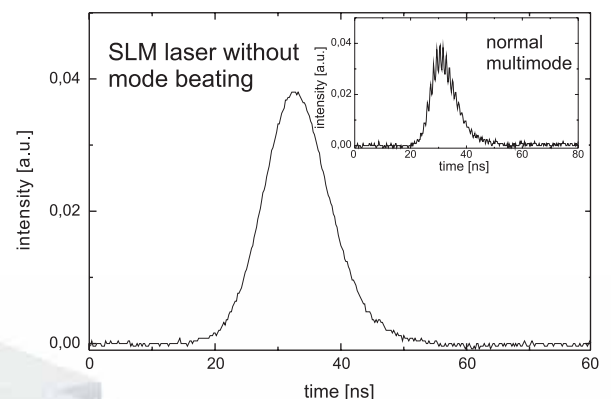
TEM₀₀ beam profile, short pulse duration, Q-switched solid state lasers
Tailored to match your needs

For OEM applications as well as fundamental research Xiton Photonics GmbH develops specific solutions which match precisely customer requirements even at exotic wavelengths. Our clients are organizations with a world wide reputation like Max Planck and Fraunhofer Institutes.



Single Frequency ns-Lasers

Single longitudinal and transversal mode emission is achieved by injection-seeding with the narrow-linewidth radiation of an Innolight GmbH cw non-planar ring laser. The lasers provide short output pulses with a duration of <12 ns in a diffraction-limited beam with $M^2 < 1.2$ at a repetition rate of 8 to 15 kHz. The spectral bandwidth of the seeded laser output is < 80 MHz. These lasers are well suited for scientific applications due to a high pulse-to-pulse stability of $\sigma < 1\%$. The average output power is up to 10 W at 1064 nm, and 5 W at the frequency-doubled wavelength of 532 nm. The UV wavelengths 355 nm, 266 nm and 213 nm have ultra-stable pulse traces not presentable with conventional lasers.

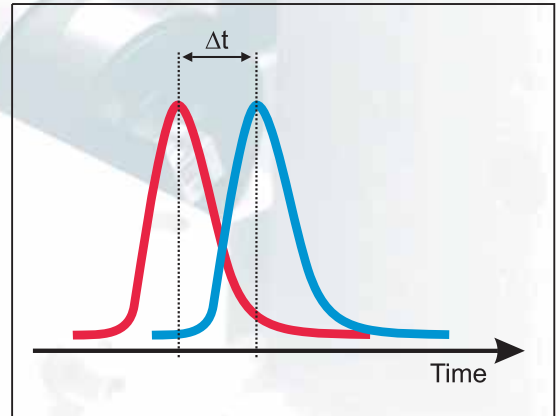


Model	SLM-1.06	SLM-S	SLM-T	SLM-5HG
wavelength	1064 nm	532 nm	355 nm	213 nm
spectral bandwidth	< 80 MHz	< 80 MHz	< 80 MHz	< 80 MHz
average power	> 8.0 W	> 4.0 W	> 2.0 W	> 100 mW
pulse duration	< 12 ns	< 12 ns	< 10 ns	< 8 ns
energy per pulse	800 μ J	400 μ J	200 μ J	10 μ J
repetition rate	8 -15 kHz	8 - 15 kHz	8 - 15 kHz	08 - 15 kHz
M^2	< 1.2	< 1.3	< 1.3	< 1.6
pulse-to-pulse stab.	$\sigma < 0.3 \%$	$\sigma < 1.0 \%$	$\sigma < 2.0 \%$	$\sigma < 2.5 \%$

All specifications at 10kHz pulse repetition rate.
 Specifications are subject to change without notice due to product improvement

Synchronisation and Precision-Triggering

The Xiton Photonics SYNCHRO option allows to synchronize the pulses of any two Xiton Photonics Q-switched laser sources with high repetition rates at an remarkable precision. While the technique of synchronizing laser pulses at low repetition rates (10-50 Hz) is well known for years using electro optical modulators (EOM) we are offering the first commercial system which can do so a thousand times faster. The ultrastable trigger setup allows to sweep one pulse across the other in steps of 250 ps with a temporal jitter of < 500 ps. The SYNCHRO-option enables precise synchronization even with other consecutive emitting lasers in a hybrid-system.



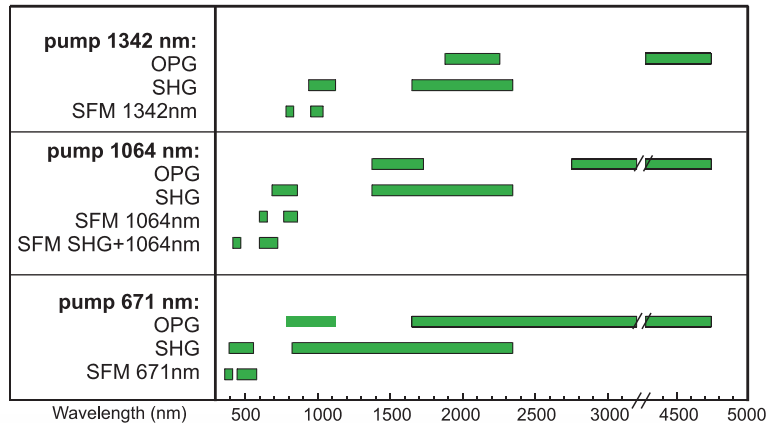
Tunable Laser sources (OPG/OPO)

Xiton Photonics is offering tunable solid state high repetition rate laser sources which enable fast data acquisition well above video frame rates. The wavelength range from 193 nm up to 5 μm is covered.

The solid-state way to produce tunable laser radiation in the near- and mid-infrared spectral region is the use of optical parametric generators with periodically poled lithium niobate.

Spectral narrowing to < 80 MHz bandwidth is available as an option. Further bandwidth reduction is possible for true cw-Laser-Systems.

XOPG wavelength overview



Examples / References

Pump Source for Narrow linewidth THz OPO

(Fraunhofer IPM)

For this Application we designed a Fourier-limited ns-laser at 1064 nm. The laser in a injection seeded MOPA configuration has an average output power of 10 W at a pulse repetition rate of 15 kHz.

Optics Express Vol.17, No.8, p.6623 (2009);

Optics Express Vol.18, No.11, p.11316-11326 (2010)

Single Frequency cw-OPO at 1162nm

(Max Planck Institute for Nuclear Physics)

For spectroscopy of negative osmium ions we designed a cw-OPO with a emission wavelength at 1162 nm and an average output power of more than 100 mW. The spectral Bandwidth was less than 5 MHz.

Phys. Rev. Lett. 102, 043001 (2009);

Optics Lett., Vol. 35, No. 6, p. 820 (2010)

Powerful high repetition rate nanosecond optical parametric generator in MgO:PPLN tunable from 3.5 μm to 4.6 μm

(TU Kaiserslautern / FGAN-FOM / DIEHL BGT Defence)

This unique laser source produces tunable laser radiation in the mid-IR. The average output power exceeds 500 mW at 3.5 μm And 100 mW at 4.6 μm with a pulse repetition rate of 30 kHz. *Conference on Lasers and Electro Optics (CLEO), Poster Session (2007)*

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