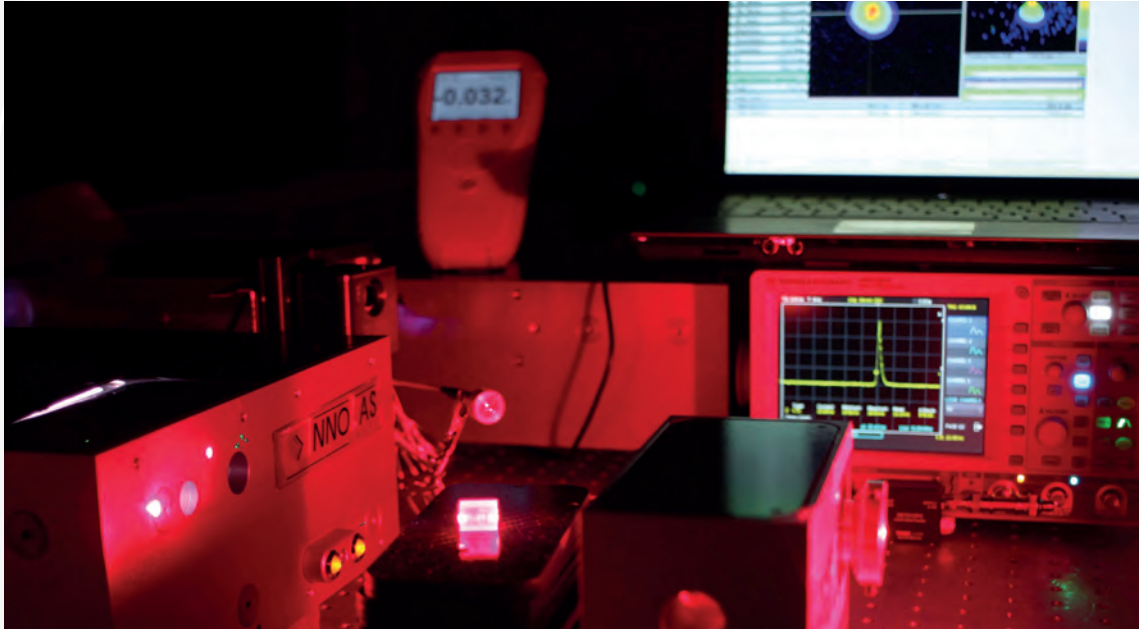


1319 NM ND:YAG LASERS

High-Energy nanosecond pulses at alternative wavelength



InnoLas succeeded in developing a high power 1319 nm laser with up to 800 mJ pulse energy. The laser is now available with two different resonator types (Multimode and VRM) to match different application requirements. Based on the field-proven SpitLight monolithic laser head design and components, it offers excellent long-term stability, same as any 1064 nm laser system.

Specification

Wavelength:	1319 nm
Pulse Frequency:	1-20 Hz
Pulse Energy Oscillator:	> 150 mJ
Pulse Energy single-stage Amplifier:	> 350 mJ
Pulse Energy multi-stage Amplifier	> 800 mJ
Energy Stability (RMS)	< 2.0 %
Pulse Width:	14-18 ns
Divergence:	< 0.5 mrad
Pointing Stability:	< 50 μ rad
Laser Head dimensions:	665 x 294 x 125 mm

Optional features:

- * Diode pumped (DPSS) version for high pulse frequency up to 1 kHz
- * Injection Seeding for single longitudinal mode (SLM) operation
- * Second Harmonic Generation (SHG) for 659 nm emission
- * Double-Pulse operation

Application examples for 1319nm laser systems:

One of the applications profiting from using high energy pulses at 1319 nm instead of 1064 nm is Thomson Scattering in plasma research. The bigger usable spectral shift range enables higher accuracy in the measurement of plasma temperatures, one of the key characterizations required when investigating Fusion Reactor experiments.



ESO.org, C.Malin, DSC_9938

Another experiment where 1319nm pulses (indirectly) can enable higher accuracy is atmospheric research, where 589 nm high energy pulses can be used for Sodium-line LIDAR. Based on a monolithic dual-resonator laser head design and sum frequency mixing of 1319 nm and 1064 nm, high-energy, nanosecond pulses at 589 nm are generated. Two injection seeders can be used to keep the output bandwidth narrow.

Example parameters for such a LIDAR system are:

Pulse Frequency:	100 Hz
Pulse Energy at 589nm:	> 40 mJ (4 W)
Pulse Width:	18 ns
Line Width:	100 MHz

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