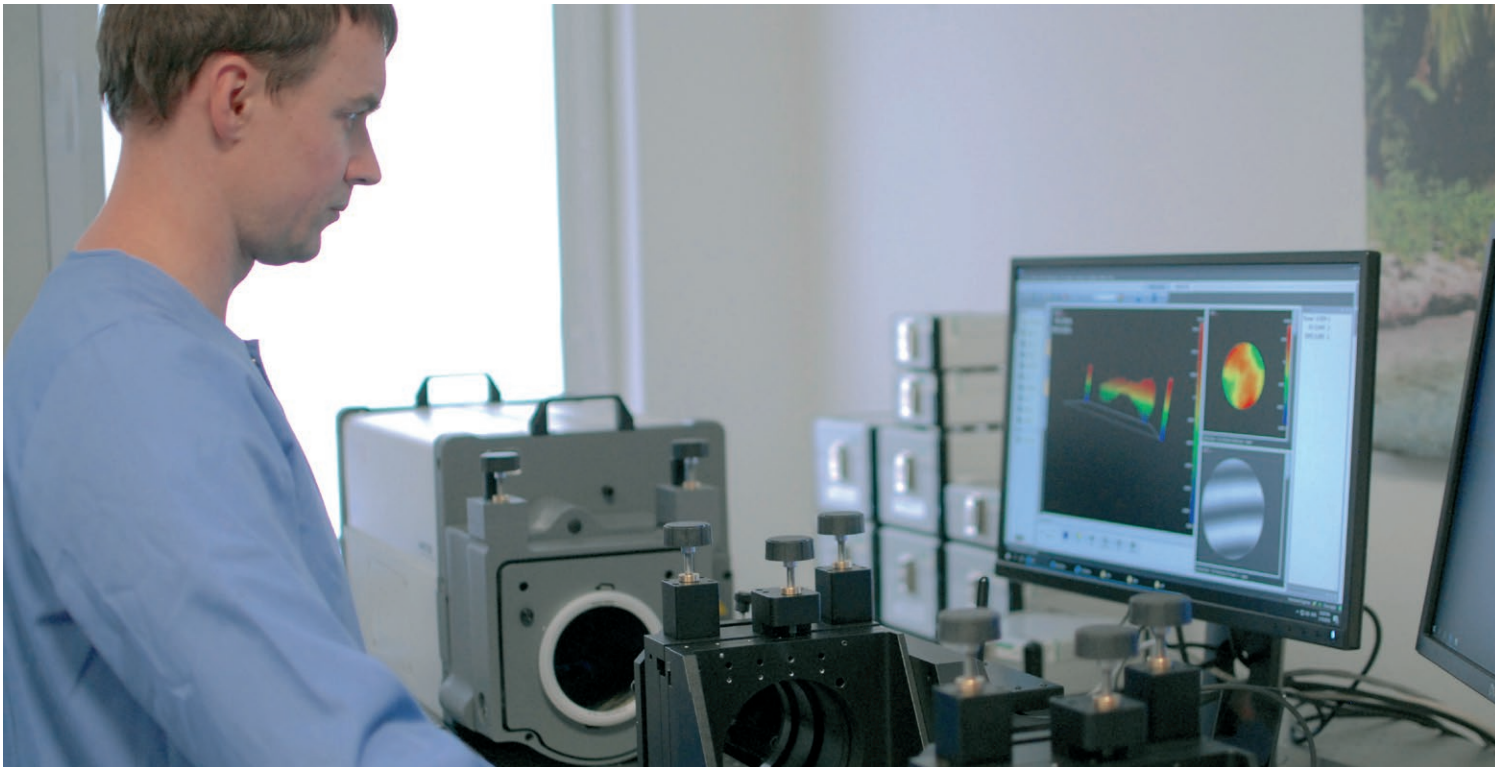


Production and quality assurance capabilities

Main capabilities & specialities:

- Design and development of custom laser gain and optical modules
- Development and production of different laser crystal hosts and ion dopant combinations
- From conventional to super-polished laser optics
- From refurbishing of your crystals to state of the art monolithic crystal assemblies
- Clean room environment, optical design (Zemax), mechanical designing (SolidWorks), in-house CNC machining.

EXPERIENCE

Over 15 years' experience in laser optics industry

EFFICIENCY

Efficient comunication & short leadtime for custom parts

TECHNICAL SUPPORT

>90 % of staff has technical background in Laser Physics

RELIABILITY & REPEATABILITY

Standartized production and quality assurance

CUSTOM SOLUTIONS

Custom laser components design and production

COSTS SAVINGS

Superior price - performance ratio

In-house optical metrology instruments to guaranty every specified optics parameter:

ZYGO Verifire 4inch interferometer including full set of spherical references

Spectrophotometers Photon RT and HighFinesse WS6

Optical benches with multiple laser sources

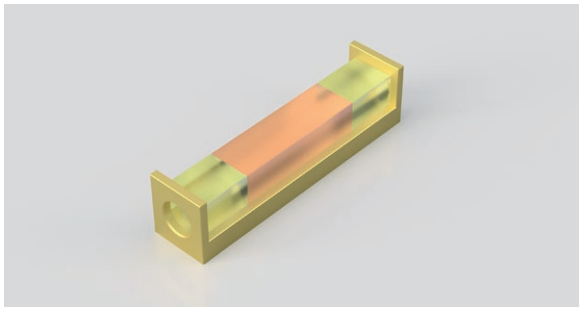
Stereo zoom microscopes Olympus SZX7

X-ray crystallograph/refractometer

M2 metter and set of cameras for laser beam quality measurements

Main activities

Laser setups and gain modules



OEM and custom laser gain modules

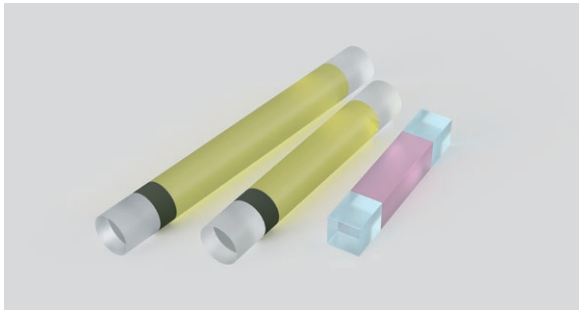
Educational laser setups

Unique and exotic laser gain materials

Step-by-step instructions

Engineering assistance

Crystals



Laser crystals

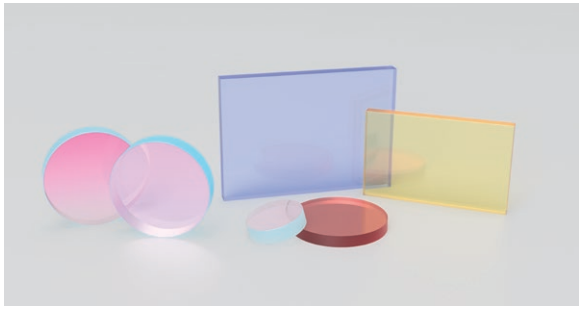
Nonlinear crystals

Passive Q-switch crystals

Photorefractive crystals

Scintilation crystals

Laser cavity and optical components



Laser mirrors and beam splitters

Polarization optics

Separators, beamsplitters, combiners

Customized optics

Repolishing and coatings services

Lab supplies, consumables & tools

Custom optomechanical components

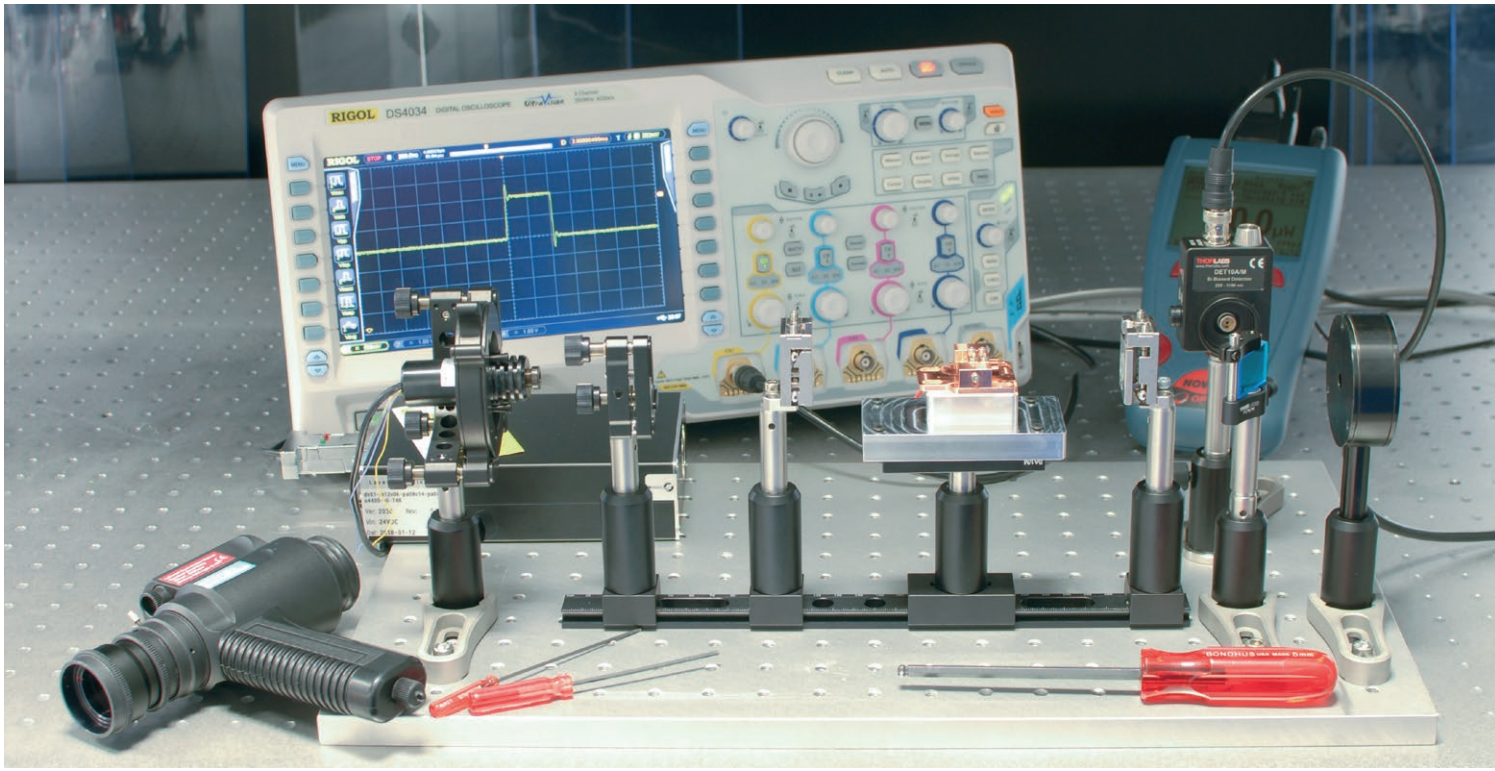
Laser diode drivers & laser diodes

Thermal management components

IR viewers and visualizers

Laser safety

4Lasers, Mokslininku str. 2A, 08412 Vilnius, Lithuania. Phone: +370 5 219 4884, sales@4Lasers.com; www.4Lasers.com



Laser gain modules and setups

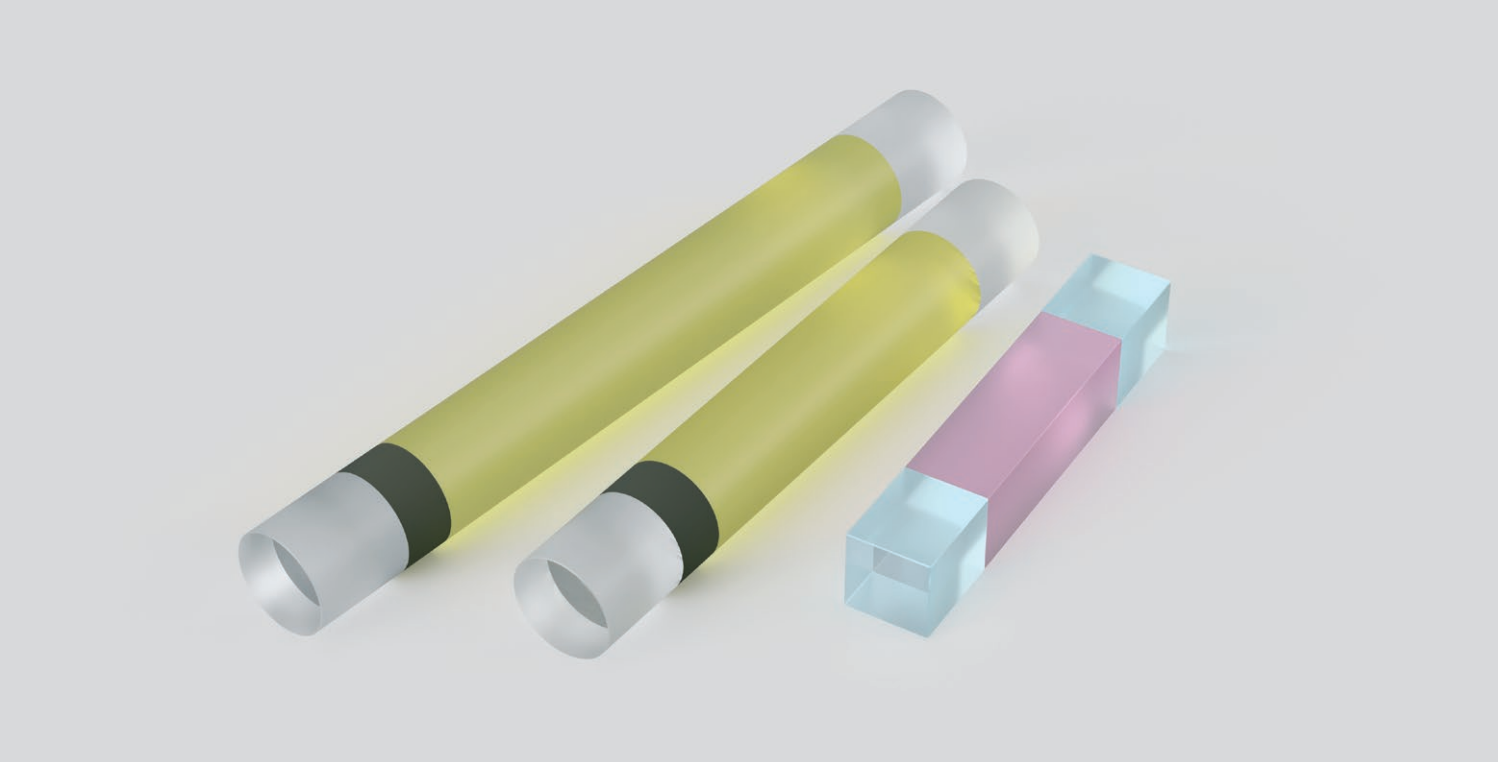
In the past decades photonics and laser physics has undergone a revolution, driven by new methods of generating, controlling and detecting photons. Nowadays, a lot of well-established and high-quality lasers are used in variety of research fields, industry and everyday life products. On the other hand, the demand of new, compact and low-cost laser sources is growing more than ever. Scientists implement various experimental approaches to overcome these problems and, luckily, reveals their results in scientific papers. Most often, for an ordinary customer it is difficult to achieve their scientific revealings due to commercially unavailable components and high-costs. **4Lasers** team offers self-build state-of-the-art lasers setups and gain modules based on the newest scientific articles and papers, where well-known and exotic laser gain materials are reviewed. Also, we provide classical laser setups for educational purposes. In every setup, you will find all the necessary **4Lasers** parts with detailed step-by-step instructions and schemes. What is more, every setup can be easily adjusted on your request.

- Well-known laser gain media setups series:
  Nd:YAG, Nd:YVO4, Ti:Sapphire, Nd:KGW

- Exotic laser gain media setups series:
  Pr:YLF, Tm:KYW, Yb:YAB, Er,Yb:YAB, Yb:YAP

- Educational laser setups series
  Step-by-step instructions and engineering assistance
  Setup customization on customers' request

4Lasers, Mokslininku str. 2A, 08412 Vilnius, Lithuania. Phone: +370 5 219 4884, sales@4Lasers.com; www.4Lasers.com

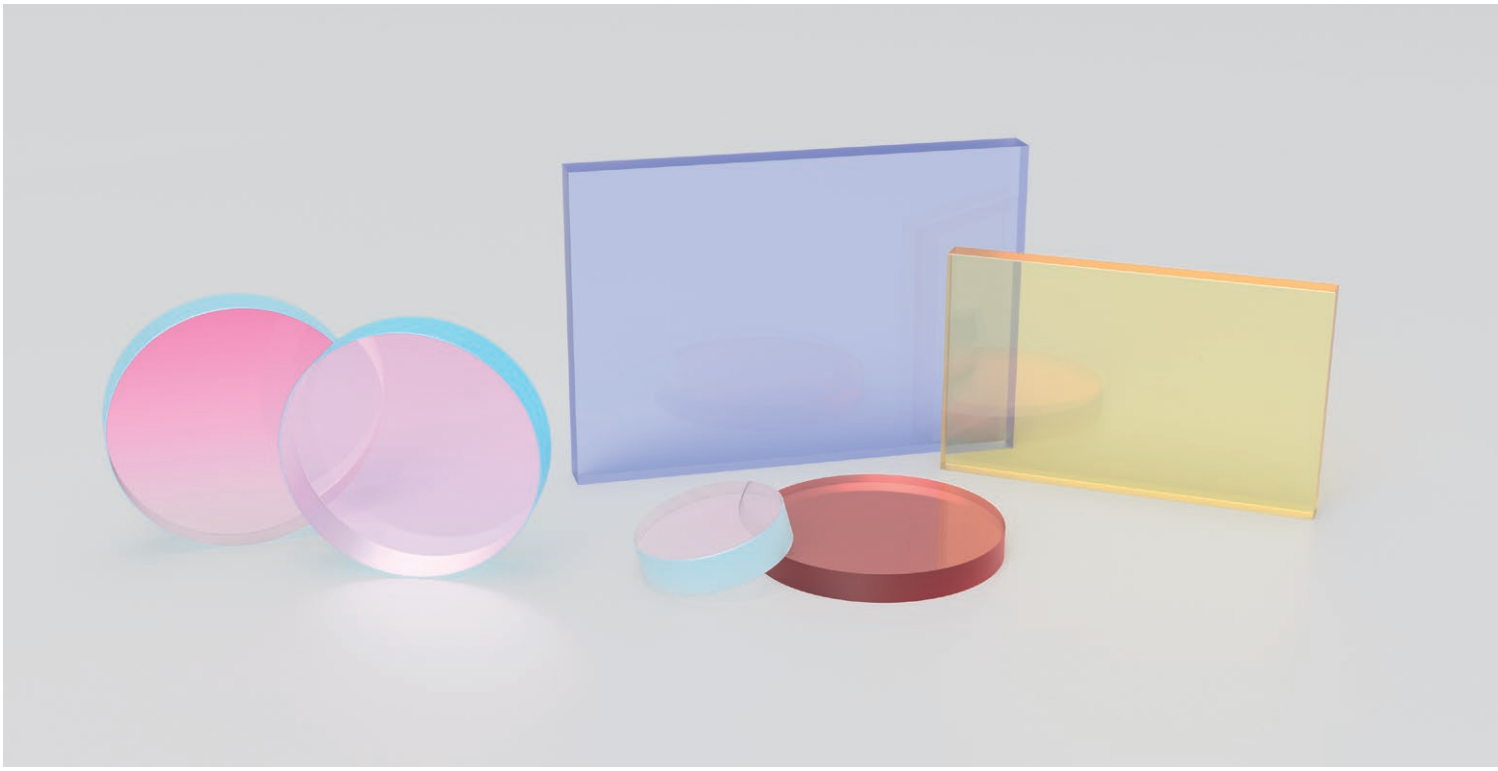


Laser crystal materials, elements, assemblies

Optogama is developing different laser crystal hosts and ion dopant combinations for fundamental, applied research and industrial applications. This is realized together with scientific and industrial partners through numerous government, industry and internally funded R&D contracts.

Available technologies: Stepanov, Modified Flux growth, Kyropoulos, Czochralski

Laser crystals	Pr:LiYF4 [Pr:YLF]	Nonlinear crystals	BBO
	Ho:LiYF4 [Ho:YLF]		LBO
	Tm:LiYF4 [Tm:YLF]		KTP
	Tm:KY(WO4)2 [Tm:KYW]		KDP & DKDP
	Yb:LiYF4 [Yb:YLF]		LiNbO3
	Yb:Y3A5O12 [Yb:YAG]		AgGaS2 & AgGaSe2
	Yb:CaF2		GaSe
	Yb:KY(WO4)2 [Yb:KYW]		ZnGeP2
	Yb: KGd(WO4)2 [Yb:KGW]		CdSe
	Yb:YAl3(BO3)4 [Yb:YAB]	Passive Q-switch Crystals	Cr:YAG
	Yb:YAlO3 [Yb:YAP]		V:YAG
	Er:KY(WO4)2 [Er:KYW]		Co:MALO(Spinel)
	Er, Yb:YAl3(BO3)4 [Er,Yb:YAB]	Photorefractive Crystals	Bi12SiO20 [BSO]
	Er, Yb: phosphate glass		Bi12GeO20 [BGO]
	Ti:Al2O3 [Ti:Sapphire]		Fe:LiNbO3
	Nd:Y3A5O12 [Nd:YAG]		SBN
	Nd:LiYF4 [Nd:YLF]	Scintilation Crystals	Ce:YAG
	Nd: KGd(WO4)2 [Nd:KGW]		Ce:YAP
	Cr:LISAF		Ce:LuAG, Ce:LuAP



Laser optics and components

We offer the highest quality optics and optical components covering UV, VIS, NIR and IR wavelengths. Whether you are setting up you laser experiment or integrating a commercial product, we have competitively high performance optics for your needs.

Laser optics	Mirrors (dielectric thin film)	Polarization control	Thin film polarizers
	Mirrors (metallic)		Polarizing cubes
	Separators and Combiners		Waveplates
	Laser cavity output couplers		Glan polarizers
	Variable reflectivity mirrors		Sheet polarizers
	Laser line mirrors		Polarization rotators
	Dual and multi wavelength mirrors		Depolarizers
	Broadband laser mirrors	Lab supplies & tools	Beam expanders
	Beamsplitters		IR viewers
	Lenses, filters		Optomechanics

Express coatings in 1-2 weeks of e-beam (up to diam 400mm) and IBS (R>99,98 %) technologies

Experience and knowledge in advanced dielectric coatings:

Optimized electrical field distribution inside the coating layers

Minimized accumulative effects

Extended lifetime of optics & crystals

High laser-induced-damage-threshold (>75 J/cm^2, 8 nm @1064 nm)