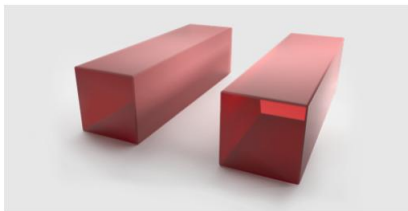


Crystals

飞秒激光器晶体

Whether you are setting up your laser experiment or integrating a commercial product, we have competitively high-performance crystals for your needs.

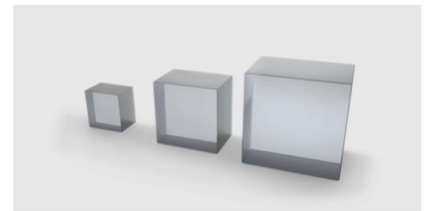
Do not hesitate to request custom, if the crystal is not in the standard crystals section.



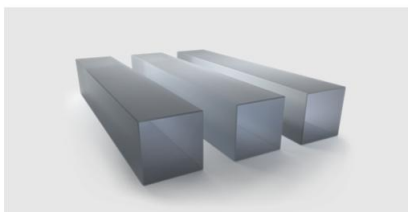
Laser crystals



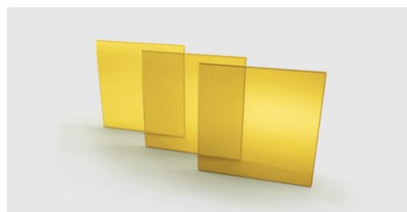
Passive Q-switch crystals



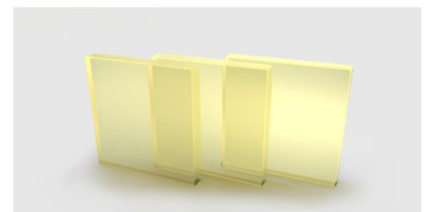
Nonlinear crystals



Raman crystals



Photorefractive crystals



Scintillation crystals

Laser crystals

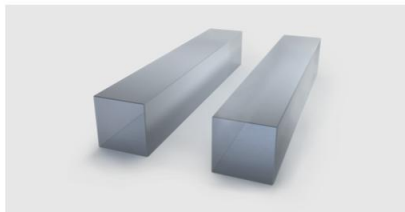
激光晶体

Laser crystals, glasses, and ceramics are used as optical gain sources in solid-state lasers. These media are typically doped with rare-earth ions (e.g. neodymium, ytterbium, or erbium) or transition metal ions (titanium or chromium).

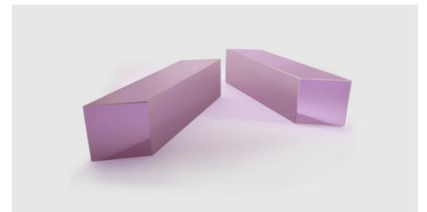
Lasers develops and supplies different laser crystal hosts and ion dopant combinations for fundamental, applied research and industrial applications. Available crystal growth techniques: Stepanov, Modified Flux growth, Kyropoulos, and Czochralski.



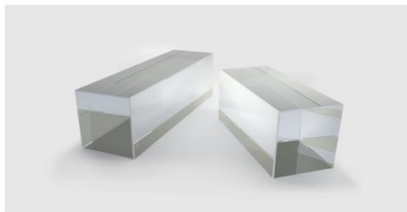
Nd-doped crystals



Yb-doped crystals



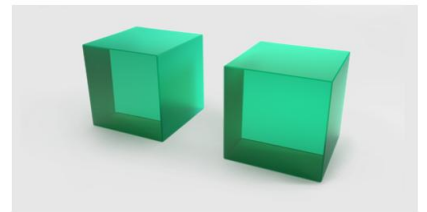
Er-doped crystals



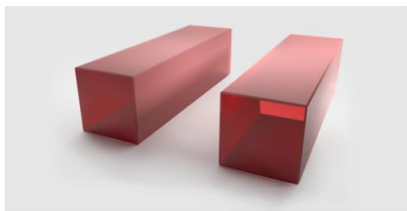
Er, Yb co-doped crystals



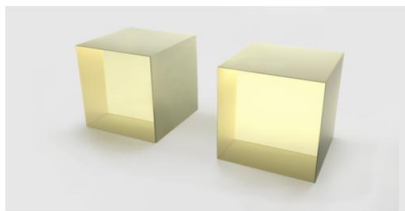
Tm-doped crystals



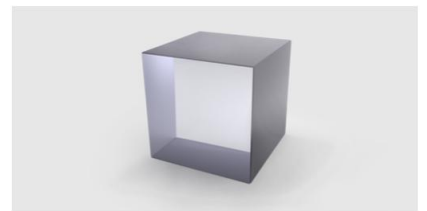
Cr-doped crystals



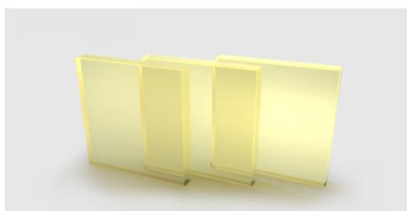
Ti:Sapphire crystals



Pr:YLF crystals



Ho:YLF crystals

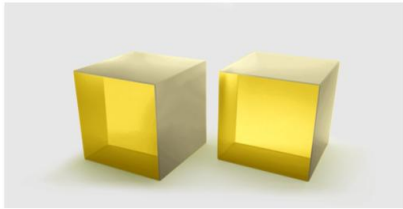


Tm, Ho:KYW crystals

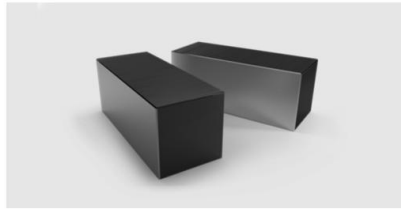
Nonlinear crystals

非线性晶体

Nonlinear optical crystals are used in many different nonlinear parametric applications. To mention a few: second harmonic generation, difference-frequency generation, optical parametric amplification, and others. A proper crystal has to be chosen in order to use it for a particular application. It should have transparency in the required spectral range, adequate birefringence for phase-matching, a high nonlinear coefficient, high optical damage threshold, and other properties. Contact 4Lasers team for assistance and custom solutions.



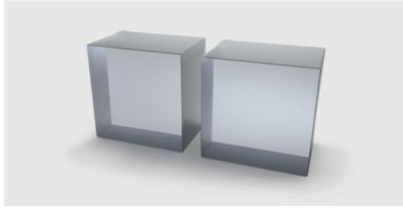
AgGaS2 crystals



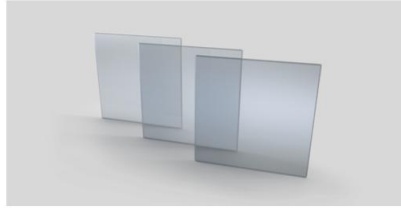
ZnGeP2 crystals



GaSe crystals



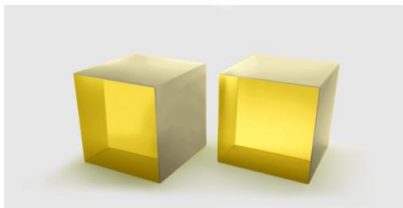
KDP, DKDP crystals



Lithium niobate crystals



AgGaSe2 crystals



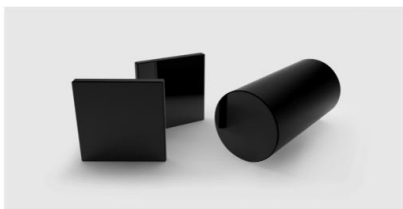
AgGaS2 crystals



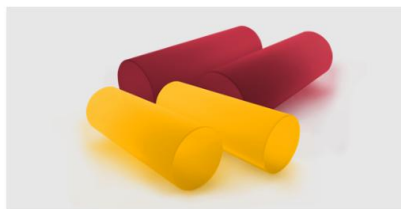
ZnGeP2 crystals



GaSe crystals



CdSe crystals



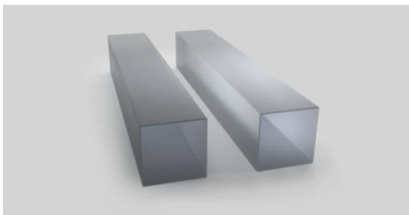
Solid state dye cell

Raman crystals

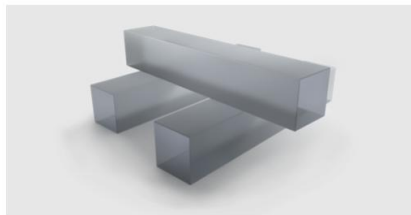
拉曼晶体

Inelastic photon-phonon-interaction in Raman crystals gives rise to Stokes or anti-Stokes shift of pump radiation. It is the so-called Stimulated Raman scattering (SRS). This is a versatile method for frequency conversion, which does not need to be phase-matched, features a high conversion efficiency, and is easily compatible with current solid-state lasers. Suchlike Raman generator emission lines can cover the wavelength range from UV to NIR due to cascaded SRS. For a selective Raman shift line amplification, the Raman crystal has to be placed into a resonator with appropriate optical feedback.

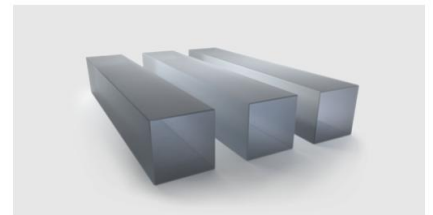
Lasers provide barium nitrate and undoped KGW, KYW Raman crystals. Do not hesitate to request custom, if desired crystals are not present in the standard list.



Barium nitrate crystals



KGW crystals

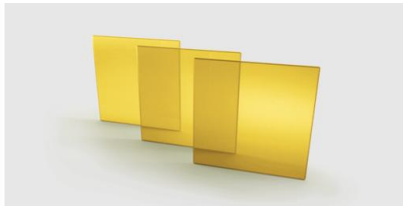


KYW crystals

Photorefractive crystals

光致折射晶体

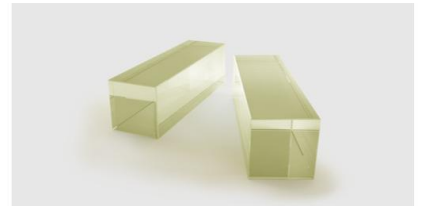
Lasers provide BSO, Fe:LiNbO₃, SBN, and BGO crystals not mainly, but necessarily for applications, which exploit photorefractive effect. The photorefractive effect is a phenomenon whereby the local index of refraction is modified by spatial variations of light intensity. It is observed when coherent light interferes with each other in a photorefractive material, which forms a spatially varying pattern of illumination. The effect can be used to store temporary, erasable holograms, also known as holographic data storage. It can also be used to create phase-conjugate mirrors or optical spatial solitons.



BSO crystals



Fe:LiNbO₃ crystals



SBN crystals



BGO crystals

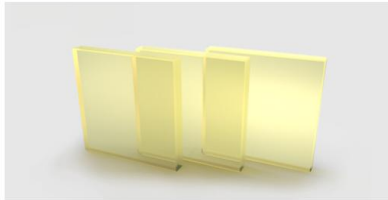
Scintillation crystals

闪烁晶体

4Lasers offers high-quality scintillation crystals that absorb energetic radiation such as gamma rays or neutrons and convert that energy into short bursts of visible photons.

These crystals have great features such as high density, fast operation speed, radiation hardness, and great quality-price ratio.

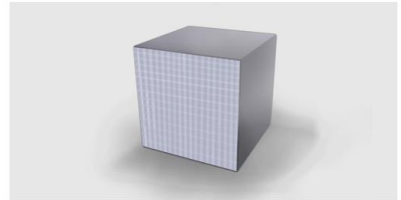
Scintillation crystals can be used for research, medical and industrial applications, therefore custom solutions are available upon request.



Ce:YAG crystals



Ce:YAP crystals



Ce:LYSO crystals