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TI:SAPPHIRE

Ti:Sapphire crystal is the most widely used tunable solid-state laser material combining the supreme physical and optical properties with the extremely broad lasing range. Its lasing bandwidth can support pulses < 10fs making it the crystal of choice for femtosecond mode-locked oscillators and amplifiers.

The absorption band of Ti:Sapphire centers at ~ 490 nm so it may be conveniently pumped by various laser sources such as argon ion lasers or frequency doubled Nd:YAG, Nd:YLF, Nd:YVO4 lasers at ~ 530nm.

Applications

The tunable wavelengths that cover a broad range from 700 to 1000 nm make Ti:Sapphire an excellent substitute for dye lasers in many applications.

Doubling by NLO crystals such as BBO in an ultra-thin, Ti:Sapphire can be used to generate UV and DUV (up to 193 nm) laser with ultrafast pulses below 10fs.

Ti:Sapphire is also widely used as the pump source of OPOs to expand the tunable range.

Properties

Chemical formula	Ti ³⁺ :Al ₂ O ₃
Crystal structure	Hexagonal a=4.758, c=12.991
Density	3.98 g/cm ³
Melting point	2040°C
Mohs hardness	9
Thermal conductivity	52 W/m/K
Laser action	4-level vibronic
Fluorescence lifetime	3.2 μs (T=300K)
Tuning range	660 - 1050 nm
Absorption range	400 - 600 nm
Emission peak	795 nm
Absorption peak	488 nm
Refractive index	1.76 @ 800 nm

Specifications

Ti ₂ O ₃ concentration	0.06 - 0.5wt %
Orientation	Optical axis C normal to rod axis
Figure Of Merit (FOM)	150~250 Upon customers request
Wavefront Distortion	λ/4@633nm
Flatness	λ/8 @ 633 nm
Parallelism	10 arc sec
Surface finishing	10/5 scratch/dig to MIL-O-13830A
Clear Aperture	>90%
Chamfer	<0.1mmx45°
End configurations	Flat/Flat or Brewster/Brewster ends

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WARRANTY

All products are guaranteed to be in specifications in material and workmanship for a period of 12 months after shipment.

We do not assume liability for installation, labor or consequential damages.

This warranty is not suitable for failure of the products due to misuse, abuse, accident, or neglect.

CONTACTS

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