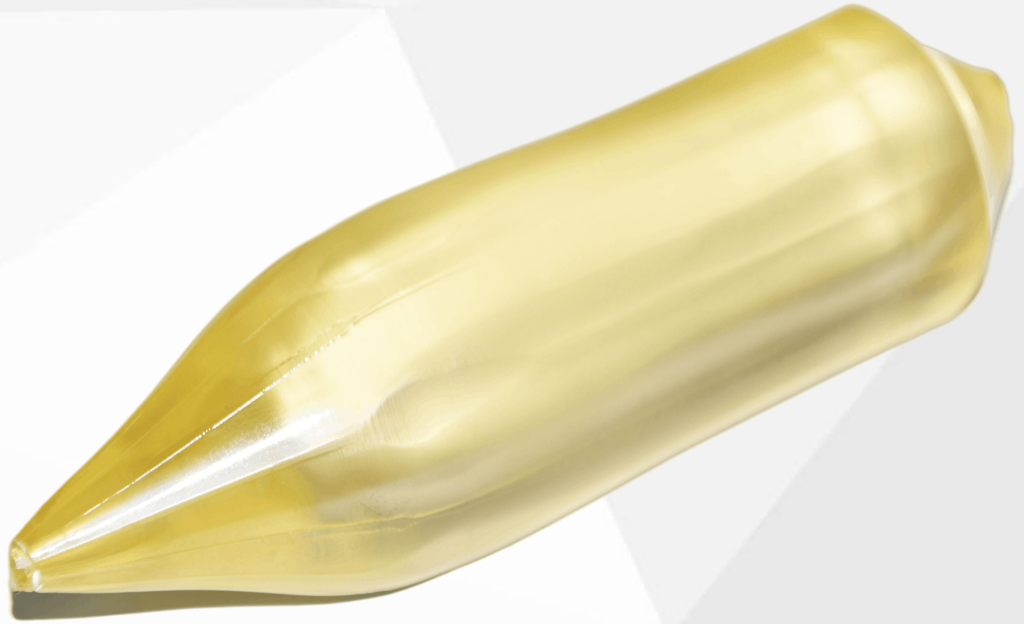
Ho:YAG crystals

Ho:YAG Ho3+ ions doped into insulating laser crystals have exhibited 14 inter-manifold laser channels, operating in temporal modes from CW to mode-locked . Ho:YAG is commonly used as an efficient means to generate 2.1-μm laser emission from the 5I7- 5I8 transition, for applications such as laser remote sensing, medical surgery, and pumping Mid-IR OPO's to achieve 3-5micron emission(suuch as ZGP crystals). Direct diode pumped systems,and Tm: Fiber Laser pumped system have demonstrated hi slope efficiencies, some approaching the theoretical limit.



The radiation wavelength of Ho3+ ions is near 2100nm, which is located in the human eye safe band and has a high transmittance in the atmosphere, and has important application prospect in the fields of remote sensing detection, laser ranging and laser radar, etc...

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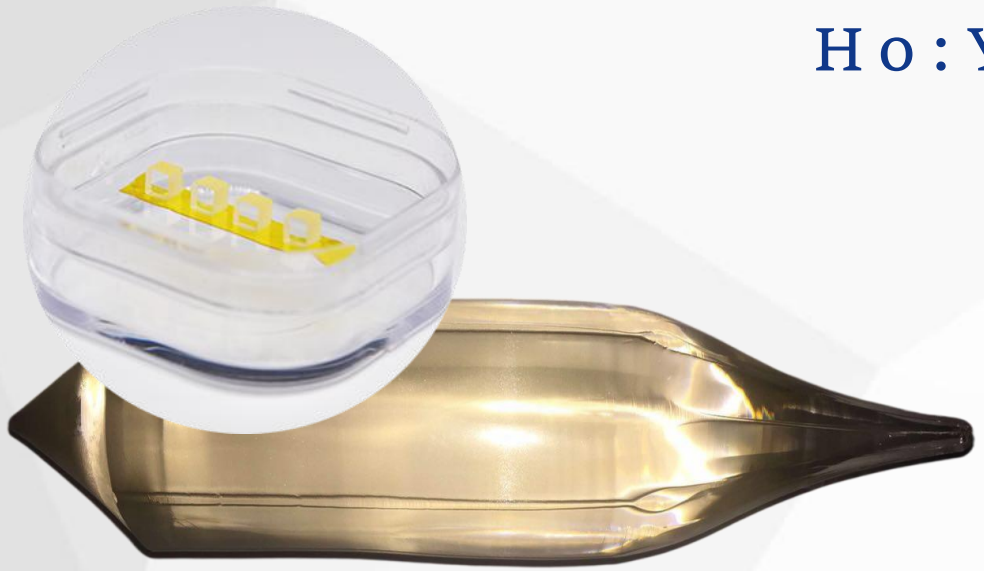

- High laser gain
- Safe for eyes and good atmosphere transmission
- High-energy storage capability
- Low quantum defect
- Long fluorescence life
- Large emission cross section
- High slope efficiency
- Low up-conversion loss and re-absorption loss

Basic properties	
Ho3+ concentration range	0.005 - 100 atomic %
Emission Wavelength	2.01 um
Laser Transition	$^5I_7 \rightarrow {}^5I_8$
Flouresence Lifetime	8.5 ms
Pump Wavelength	1.9 um
Coefficient of Thermal Expansion	$6.14 \times 10^{-6}\ K^{-1}$
Thermal Diffusivity	$0.041\ cm^2\ s^{-2}$
Thermal Conductivity	$11.2\ W\ m^{-1}\ K^{-1}$
Specific Heat (Cp)	$0.59\ J\ g^{-1}\ K^{-1}$
Thermal Shock Resistant	$800\ W\ m^{-1}$
Refractive Index @ 632.8 nm	1.83
Melting Point	1965℃
Density	$4.56\ g\ cm^{-3}$
MOHS Hardness	8.25
Young's Modulus	335 Gpa
Crystal Structure	Cubic
Standard Orientation	<111>
Y3+ Site Symmetry	D_2
Lattice Constant	a=12.013 Å

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Technical parameters	
Wavefront distortion	L/8per inch @633nm
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Extinction ratio	>28dB
Tolerance：Rods with diameter	(+0、-0.05)mm,(±0.5) mm
Surface quality	10/5 Scratch/dig per MIL-O-1380A
Parallelism	<10arc seconds
Perpendicularity	<5arc minutes
Aperture	>90%
Flatness	λ/10@ 633 nm
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