Nd:GdVO4

DESCRIPTION

CRYLINK's Nd:GdVO4 crystal products, also known as neodymium doped Gadolinium vanadate crystal. It is a kind of laser crystal product with excellent comprehensive performance. It is widely used in telemetry, ranging and remote sensing. The product has the characteristics of good thermal conductivity, large excited emission cross section and high laser damage threshold. Can be used in laser diode pumped all solid state (DPSS) micro laser, ladar, remote sensing satellite products.

FEATURES

- Good thermal conductivity
- High laser damage threshold
- Good laser output polarization
- High laser output slope efficiency
- Large stimulated emission cross-section
- Large absorption coefficient, wide absorption band width, little dependence on pump wavelength

APPLICATIONS

- Ranging
- Telemetering
- Remote sensingr
- DPSS micro laser

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BASIC PARAMETERS

Crystal structure	Zircon Square, Space Group D4h, a=b=7.21, c=6.35
Melting point	1780°C
Density	5.47g/cm3
Mohs hardness	Glass, ~ 5
Coefficient of thermal expansion	aa=1.5×10-6/K, ac=7.3×10-6/K
Thermal conductivity	11.7 W/m/K <110>
Peak absorption wavelength	808.5 nm
Stimulated emission wavelength	912.6 nm, 1063.1 nm, 1341.3 nm
Crystals	Positive uniaxial crystal, no=na=nb ne=nc no=1.9854, ne=2.1981, @ 1064nm no=2.038184, ne=2.292962, @ 532nm no=1.9977322, ne=2.219864, @ 808nm
Thermo-optical coeffecient	dn/dT=4.7×10-6/K
Stimulated emission cross section	7.60×10-19cm2 @1064 nm
Fluorescent lifetime	95 ms (1 at% nd doped) @ 808 nm
Loss coefficient	0.003 cm-1@ 1064 nm
Absorption coefficient	74 cm-1 @ 808 nm (1.2%)
Absorption length	0.32 mm @ 808 nm
extrinsic loss	Less 0.1% cm-1, @1064 nm
Line width	0.6 nm
Planned laser emission	Parallel to the optical axis (c-axis)
Diode pumping optical to optical efficiency	> 60%

STANDARD SPECIFICATIONS

Directional	a-cut (± 0.55°)
Dimensional tolerances	+/-0.1mm
Wavefront distortion	<λ/8 @632.8nm
Surface quality	44489
Parallelity	< 10 arc seconds
Perpendicularity	< 5 arc minutes
Flatness	<λ/10 @632.8nm
Clear aperture	Central 95%
Chamfer	0.15×45°
Coating	1.AR@1064nm R<0.1% 2.AR@1064nm R< 0.1% & HT@808nm T>95% 3.HR@1064nm R>99.8% & HR@532nm R>99% & HT@808nm T>95%

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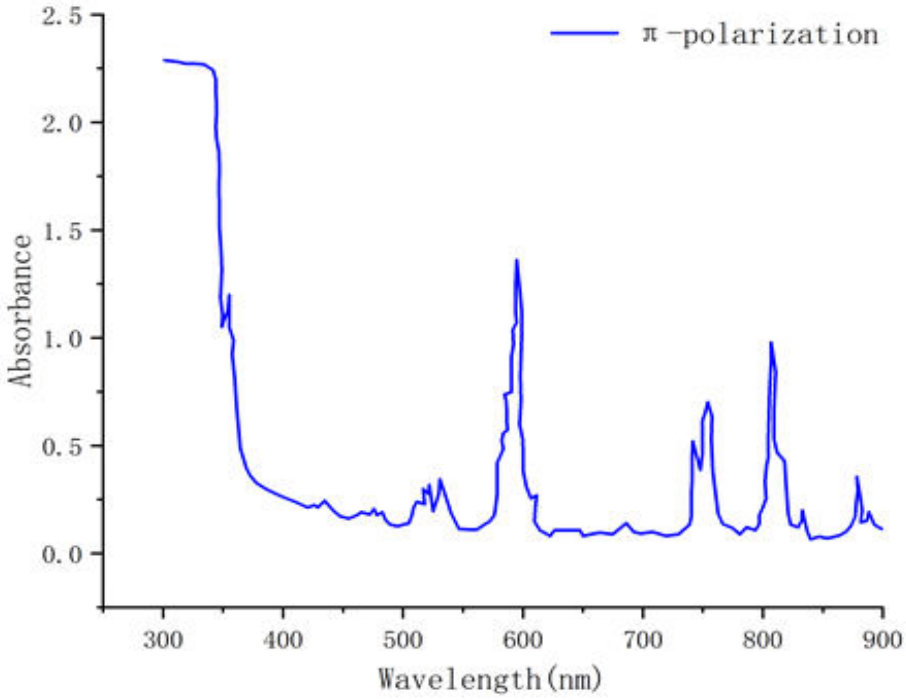
SPECTROGRAM



π polarization absorption spectra of Nd:$GdVO_4$ crystal