Nd:KGW

DESCRIPTION

Nd:KGW crystal is a kind of laser crystal that can realize high concentration doping. Because the crystal can be mixed with high concentrations of Nd ions and has a large emission area, its monopulse and low-repeat laser performance is better than Nd:YAG. The absorption band of Nd:KGW crystal is at 808 nm, which can effectively couple with LD pump source (emitting wavelength is 808 nm) to improve its luminous efficiency. Moreover, its half height and width of 12 nm makes it able to accommodate the drift of LD emission wavelength with tempera-ture, which is conducive to conducting diode pumped KGW laser experiment and device research. Nd:KGW can not only realize free oscillation, Q switching, mode locking operation, but also realize Raman conversion.

Nd:KGW crystal—A crystal can be generated from excited Raman scattering and become a multi-wavelength light source in visible band after frequency doubling.

The Raman characteristics of Nd:KGW crystal depend on its high excited beam cross section, low pumping threshold, high output energy, high conversion efficiency, and two high Raman gain coefficients (768 and 901 cm^{-1}).Since the fundamental frequency light of Raman crystal is 911 nm, 1067 nm and 1351 nm, the red, yellow and blue light of 0.455 um, 0.533 um and 65 um can be produced after frequency multiplication, which can be used in material processing, optical communication, tele-sensing, medicine, environmental monitoring, precision measurement and other fields.

FEATURES

- High doping concentration
- Highly excited cross section
- High Raman gain coefficient
- Good coupling with LD
- Wide absorption bandwidth
- Low lasing threshold

APPLICATIONS

- Q-switched solid state
- laser Self-raman solid
- laser Mode-locked laser

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Nd:KGW

PARAMETERS

PHYSICAL PROPERTIES

Nd concentration	2.2%(cw),3%(quasi-cw)
Fluorescence lifetime	130 μs
Stimulated emission cross section	3.7*10-19 cm^2
Transition wavelength	1067 nm
Thermal conductivity	K_a=2.6 W/Km
	K_b=3.8 W/Km
	K_c=3.4 W/Km
dn/dT	0.4*10^{-6} K^{-1}
Refractive index @ 1.06 μm	n_p=1.978
	n_m=2.014
	n_g=2.049
Thermal expansion coefficient	(100):4*10^{-6} K^{-1}
	(010):3.6*10^{-6} K^{-1}
	(001):8.5*10^{-6} K^{-1}
Density (g*cm^{-3})	7.248
Specific heat Cp	500 $Jkg^{-1}K^{-1}$

STANDARD SPECIFICATIONS

Laser wavelength (nm)	1067
Emission cross section (pm^2)[a]	32.3
Gain bandwidth (nm)	2.73
Fluorescence lifetime (μs)	130 at 3% doping
Thermal conductivity ($Wm^{-1}K^{-1}$)	~3

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SPECTRA