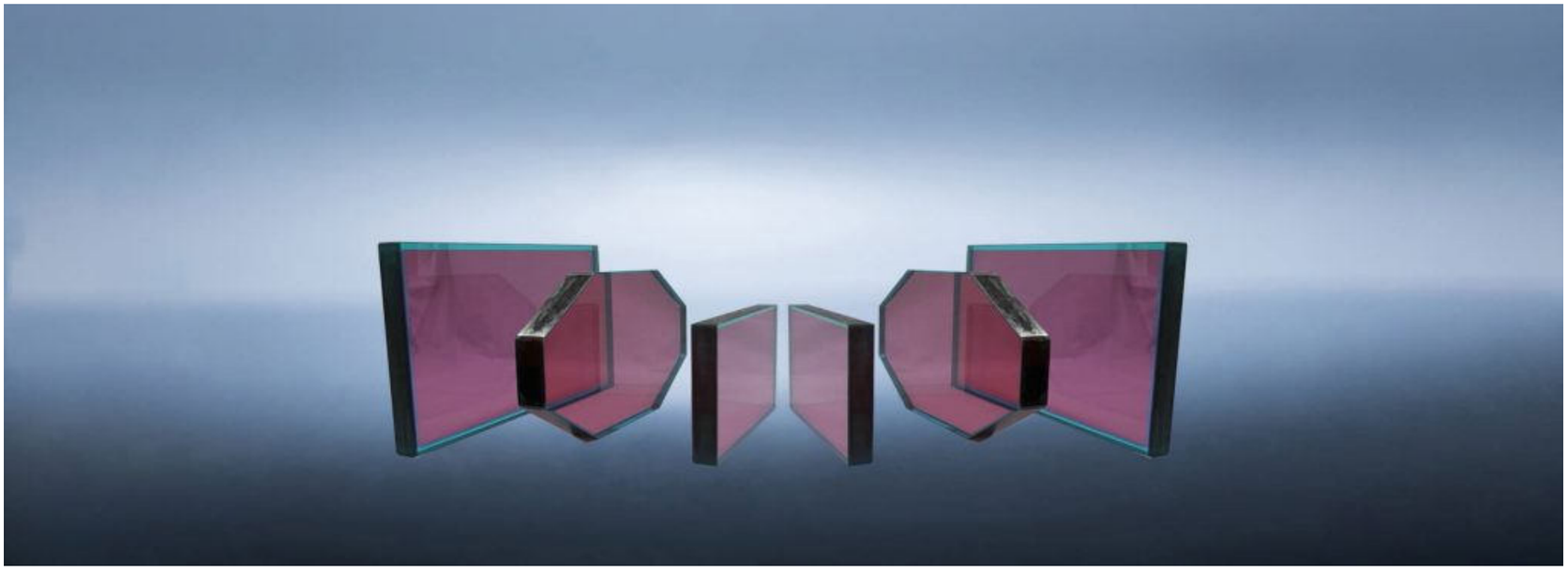
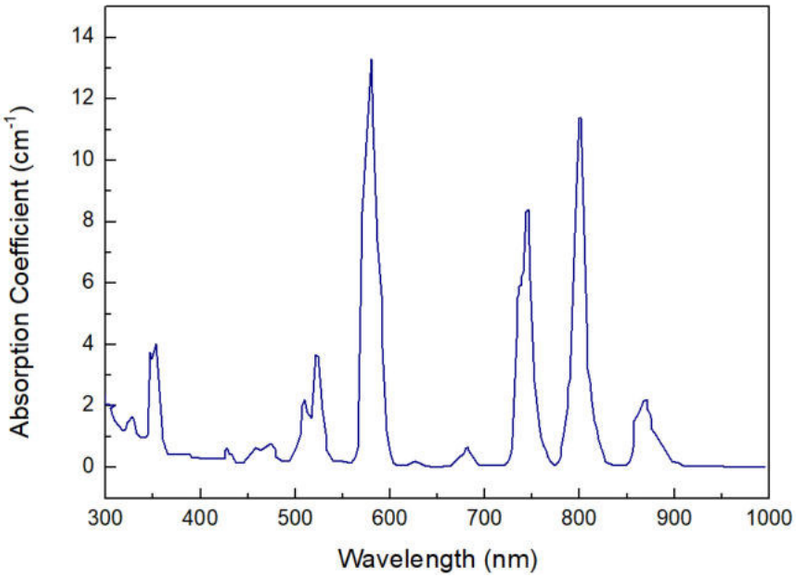
N51 Nd:Glass

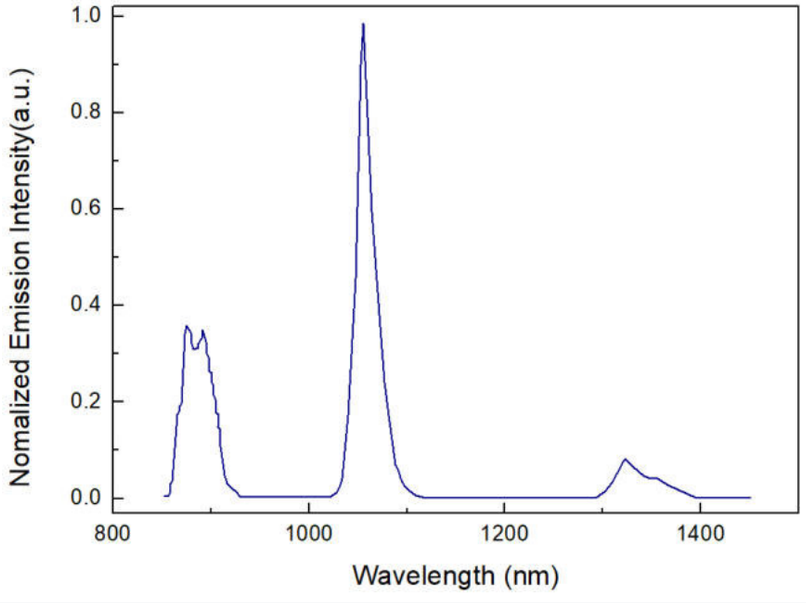


DESCRIPTION

N51 Neodymium-doped phosphate glass has the characteristics of high energy storage, large stimulated emission cross-section, long fluorescence lifetime, and easy preparation of large size and good optical uniformity. Therefore, it is widely used as an amplifier working substance in a high-power laser system.

SPECTRA





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PARAMETER

Laser Specifications

Nd2O3(wt%)	4.0
Nd3+ conc. (1020ions/cm3)	3.9±0.1
Cross section for stimulated emission (10-20cm2)	4.3±0.1
Lifetime at 1053nm (μsec)*	≥375(Nd2O3：0.5wt%)
	≥365(Nd2O3：1.2wt%)
	≥320(Nd2O3：3.5wt%)
	≥315(Nd2O3：4.2wt%)
Effective bandwidth (nm)	24.5
Fluorescence peak wavelength (nm)	1053
Absorption coefficient (cm-1)	≤0.0015(1053nm)
	≤0.25(400nm)
	≤1.5(3333nm)

Optical Specifications

Non-linear refractive index coeff.n2 (×10-13e.s.u)	≤1.04
Refractive index (1053nm)	1.505±0.003
Abbe value	68.2
dn/dT (10-6/℃) (20~100℃)	-9

Thermal Specifications

Transformation temp. (℃)	408
Softening temp. (℃)	448
Coeff.of linear thermal expansion (10-7/K) (30~100℃)	141
Coeff.of linear thermal expansion (10-7/K) (30~300℃)	160
Thermal coeff.of optical path length (10-6/K) (50~100℃)	-1.9

Other Specifications

Density (g/cm3)	2.7
Young’s modulus (G Pa)	45.2
Posson’s ratio	0.26
Knoop hardness (kg/cm2)	302
Fracture toughness (MPa·m1/2)	0.66
Dw (H2O 98℃) (mg/(cm2/day))	2.2

FEATURES

- High energy storage
- Large stimulated emission cross-section
- Long fluorescence lifetime
- Low nonlinear refractive index

APPLICATIONS

- High-power laser
- Waveguide Amplifier
- Ultra-short pulse laser experimental device

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