

electron microscopy

lasers

ionizing radiation detection

phosphors for light conversion

x-ray imaging

coating

sapphire profiles

precision optics

products

materials

technologies

career

about us

c

Crytur delivers high quality laser rods based on proprietary crystals and in-house processing and coating

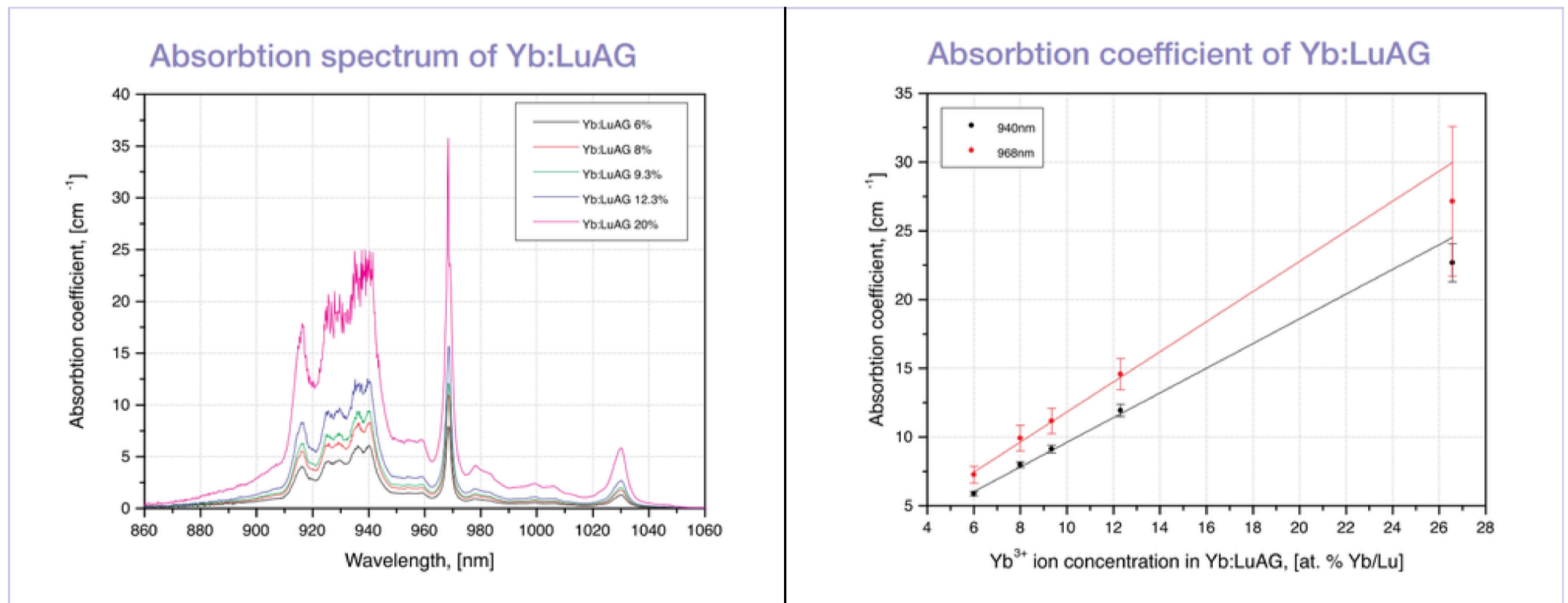
F

Laser rods - Ytterbium doped

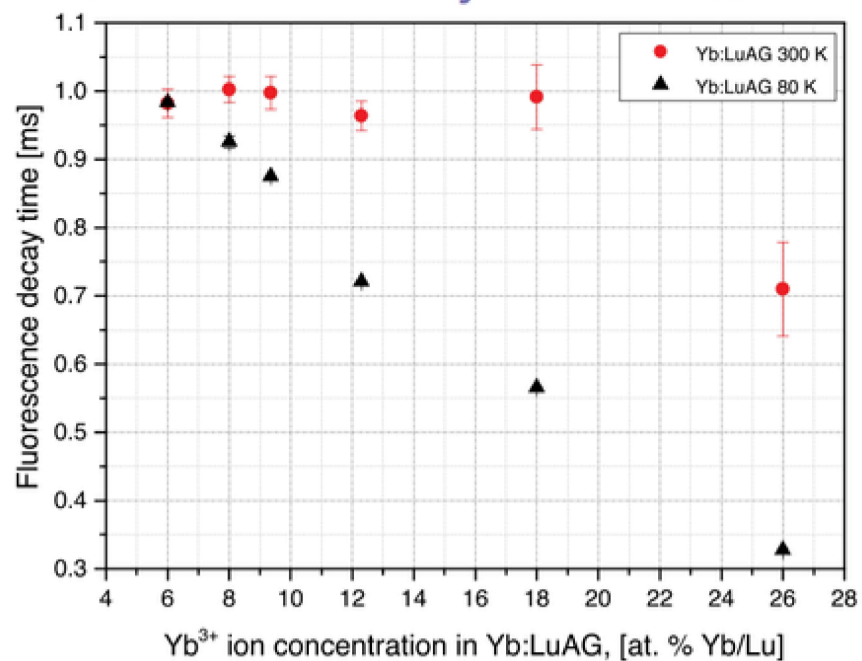
☑ YB:YAG

☑ YB:LUAG

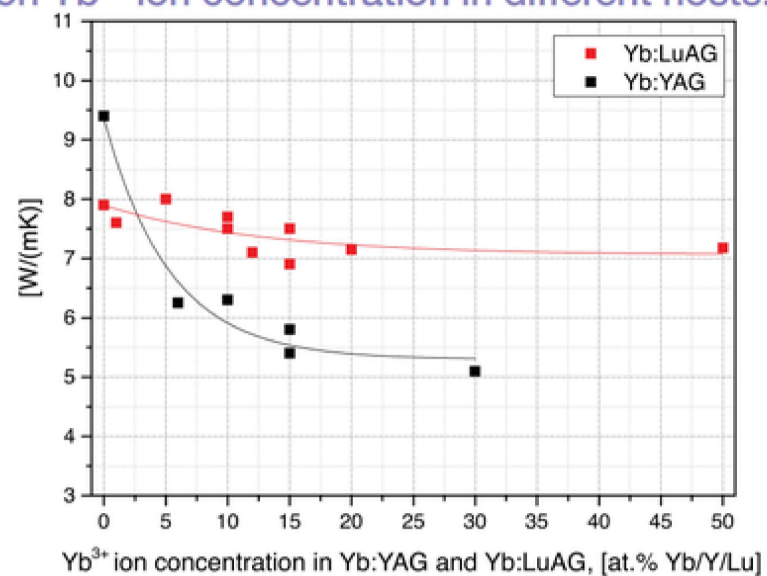
Yb:LuAG is very promising Yb-doped laser material. The optical and mechanical properties of LuAG are very similar to YAG crystal. Thanks to similar atomic weight and ionic size of doping Yb^{3+} ions and substituted Lu^{3+} lattice ions, the doping concentration has a low influence on lattice vibration modes of LuAG which allow to obtain highly doped Yb:LuAG laser crystal without significant influence on thermal conductivity of this material.



Fluorescence decay time of Yb:LuAG



Dependence of thermal conductivity coefficient on Yb³⁺ ion concentration in different hosts.¹



MATERIAL CHARACTERISTICS

Crystal structure	cubic - Ia3d
Emission wavelength	1031 nm
Pump bands	940 nm, 968 nm
Refractive index at 632 nm	1.84
Absorption cross section at 938 nm	$7.2 \times 10^{-21} \text{ cm}^2$
Emission cross section at 2031 nm	$2.6 \times 10^{-20} \text{ cm}^2$

DESIGN

Rod and disc diameters	2 – 20 mm
Disc thickness or rod length	0.1 – 100 mm
Doping concentration	1% - 10% at.
Polishing	Barrel surface fine ground or polished. Perpendicular or wedged ends. Polishing according to DIN and MIL standards.
Coatings	HfO ₂ based high reflectors, output couplers or antireflective coating

¹ K. Beil, S. T. Fredrich-Thornton, R. Peters, K. Petermann, and G. Huber, "Yb-doped thin-disk laser materials: A comparison between Yb:LuAG and Yb:YAG," in *Advanced Solid-State Photonics 2009 Technical Digest on CD-ROM, WB28, OSA, 2009*.



© 2019 CRYTUR spol.s.r.o.

Webdesign by