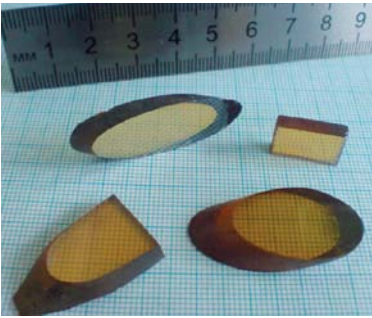


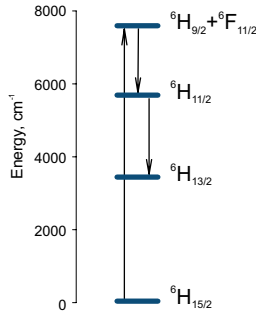
# Dy<sup>3+</sup>:PbGa<sub>2</sub>S<sub>4</sub> LEAD THIOGALLATE WITH DYSPROSIUM IONS CO-DOPED BY ALKALI METALS



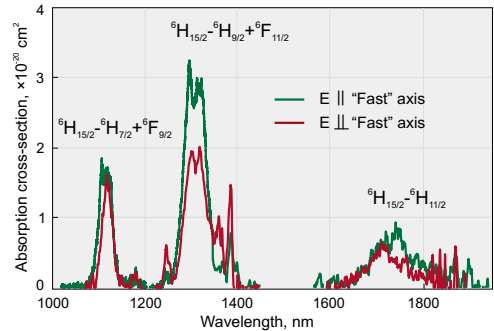
EKSMA OPTICS offers novel unique crystal – lead thiogallate (PbGa<sub>2</sub>S<sub>4</sub>) with dysprosium ions (Dy<sup>3+</sup>) co-doped by alkali metals. Crystal shows efficient laser emission at room temperature in mid IR range at 4.3-5.5 micron wavelengths.

## PHYSICAL PROPERTIES

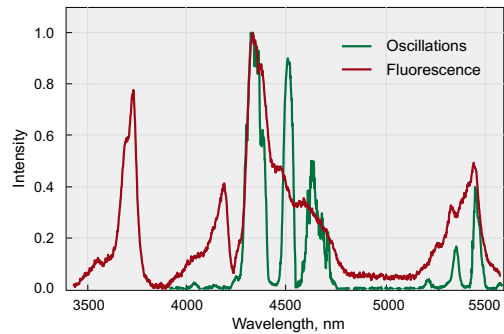
Transmission range	0.44-12 microns
Dy <sup>3+</sup> concentration in crystal	0.5 mol. %
Non hygroscopic	



Energy diagram of Dy<sup>3+</sup> ion



Polarized absorption cross-section spectrum of Dy<sup>3+</sup> ions in PbGa<sub>2</sub>S<sub>4</sub> crystal



Emission cross-section and oscillation spectrum of Dy<sup>3+</sup> ions in PbGa<sub>2</sub>S<sub>4</sub> crystal

## LASING PROPERTIES WITH FREE RUNNING 1.318 μm Nd:YAG LASER PUMP

Obtained oscillation wavelengths:	4.3 μm; 4.53 μm; 4.65 μm, 5.5 μm
Absorption at pump	~ 1 cm <sup>-1</sup>
Cross-section at 4.3 mm	1 × 10 <sup>-20</sup> cm <sup>2</sup>
Lasing threshold	< 20 mJ
Lasing pulse duration	< 1 ms
Laser efficiency	up to 2%

