

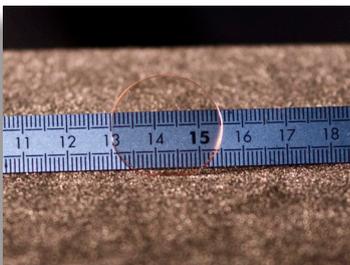


## Thin-film scintillators

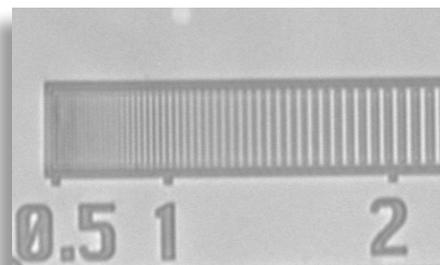
Inorganic crystals are widely used on synchrotron beamlines to convert X-rays into visible light, mostly for imaging and alignment applications.

The thin-film scintillators manufactured by the ESRF combine the following distinct advantages, compared to powder phosphors and conventional free-standing single crystals.

- ◆ 200 nm optical-grade quality • fully transparent • high-contrast images
- ◆ 500 nm spatial resolution possible, equal to optical microscopy diffraction limit
- ◆ Low afterglow



16µm thick GGG:Eu  
on 500µm undoped GGG.



Spatial resolution <math>< 1\mu\text{m}</math>,  
measured here with 6µm thick scintillator.



Visible light emitted by  
a GGG:Eu scintillator.

Type	Characteristics			Dimensions	
	Absorption efficiency @20keV for 5µm thick crystal	Wavelength (nm)	Light yield (ph/keV)	Typical thickness range (µm)	Standard / maximum dimensions (mm)
GGG : Tb	11.3%	550	20	1 - 20	8x8 / Ø 22
GGG : Eu	11.3%	595-610-715	32	1 - 40	8x8 / Ø 22
LSO : Tb	15.4%	550	40	1 - 20	8x8 / Ø 22

Other combination such as co-doping, YAG or LuAG available upon request.  
Quality assurance certification available.