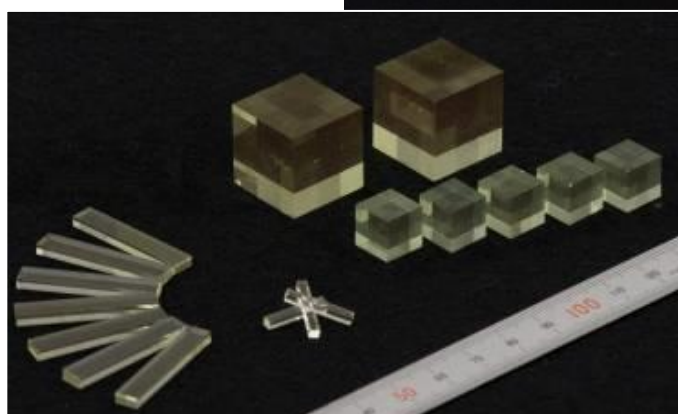
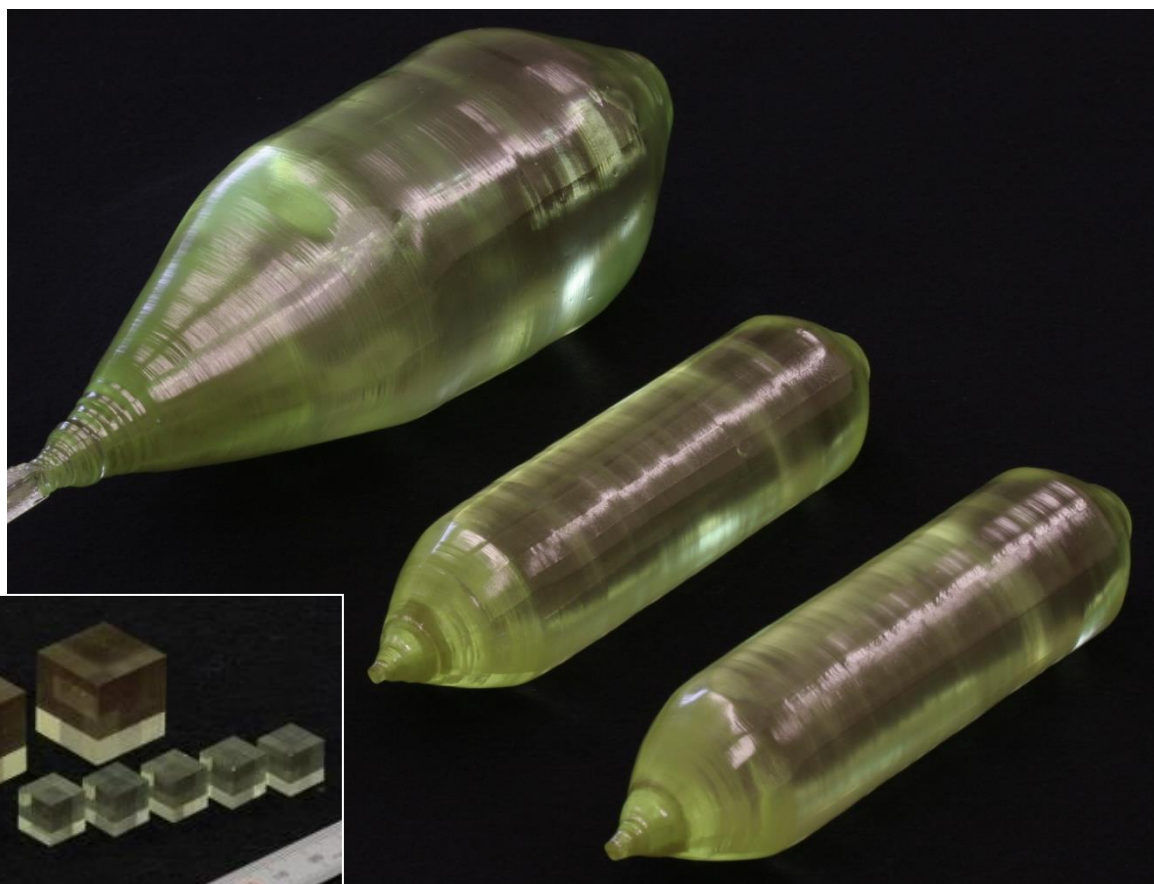


Pr:LuAG Scintillator Crystal



Physical and Scintillation Properties

Scintillators	Pr:LuAG	Ce:LYSO	BGO	Ce:LaBr ₃
Density (g/cm ³)	6.7	7.1	7.1	5.1
Light yield (photon/MeV)	20,000	34,000	8,000	75,000
Decay time (ns)	20	40	300	30
Peak emission (nm)	310	420	480	360
Energy resolution (%@662keV)	4.2	10	12	2.6
Hygroscopicity	No	No	No	Yes
Cleavage	No	No	No	No
Melting point (°C)	2,000	2,150	1,050	783

Pr:LuAG Scintillator Crystal

Features

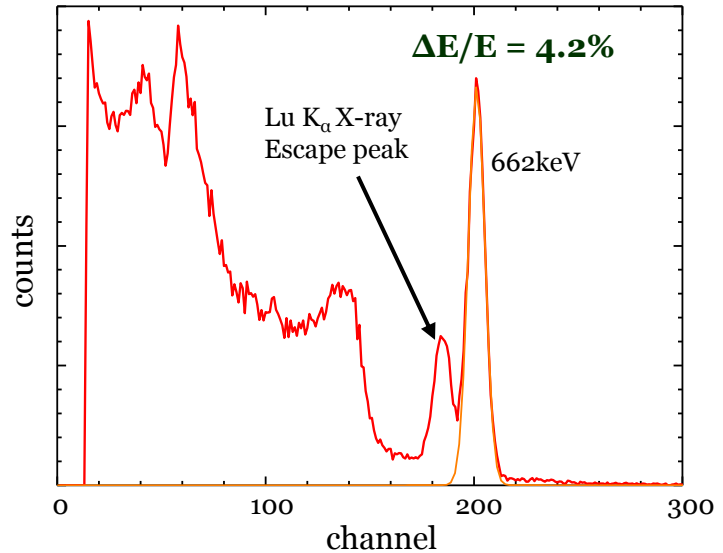
- Decay time: < 25 ns
- Energy resolution: 4.2 %
- Light yield: 20,000 photon/MeV

Specification

- Diameter : < $\phi 50$ mm
- Length : < 135 mm

Application

- PET
- PEM



Energy spectrum of Pr:LuAG excited by ^{137}Cs
(Pr:LuAG sample size: 10 x 10 x 10 mm³)

Physical Properties of undoped-LuAG

Chemical formula	$\text{Lu}_3\text{Al}_5\text{O}_{12}$
Structure / Space group	Cubic / Ia3d
Density	6.73 g/cm ³
Z_{eff}	62.9
Radiation length X_0	1.41 cm
Interaction length	23.3 cm
Refractive index	2.03 @310 nm
Hardness (Mohs)	7.5
Fracture toughness	1.1 MPa m ^{1/2}
Cleavage plane / H ₂ O solubility	No / No
Melting point	2,000 °C
Thermal expansion @RT	$8.8 \times 10^{-6} \text{ K}^{-1}$
Thermal conductivity @RT	31 W/mK