

Fast-LGSO

Key Scintillator Materials for Novel Radiation Detectors

Fast-LGSO (Ce-doped $\text{Lu}_{2-x}\text{Gd}_x\text{SiO}_5$)



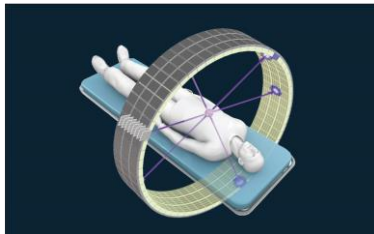
Ingot size : Φ94 × 300 mm

Features

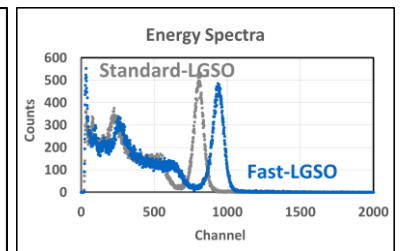
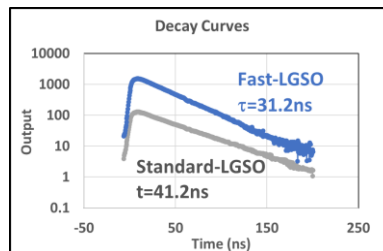
- ✓ Faster decay than standard LGSO
- ✓ Larger light output than standard LGSO
- ✓ Good timing resolution
- ✓ Other characteristics are equivalent to standard LGSO
- ✓ No hygroscopicity

Applications

Positron Emission Tomography



Properties



Comparison of Typical Scintillators

	Fast-LGSO	LGSO	LSO	LYSO	NaI:TI
Light yield (NaI=100)	~90	~90	~90	~90	100
Decay time (ns)	30~36	40~42	40~42	40~42	230
Energy resolution (^{137}Cs , %)	8~10	8~10	8~10	~10	~7
Density (g/cm^3)	7.3~7.4	7.3~7.4	7.4	7.2	3.7
Hygroscopicity	No	No	No	No	Yes
Self-radiation	Yes	Yes	Yes	Yes	No

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