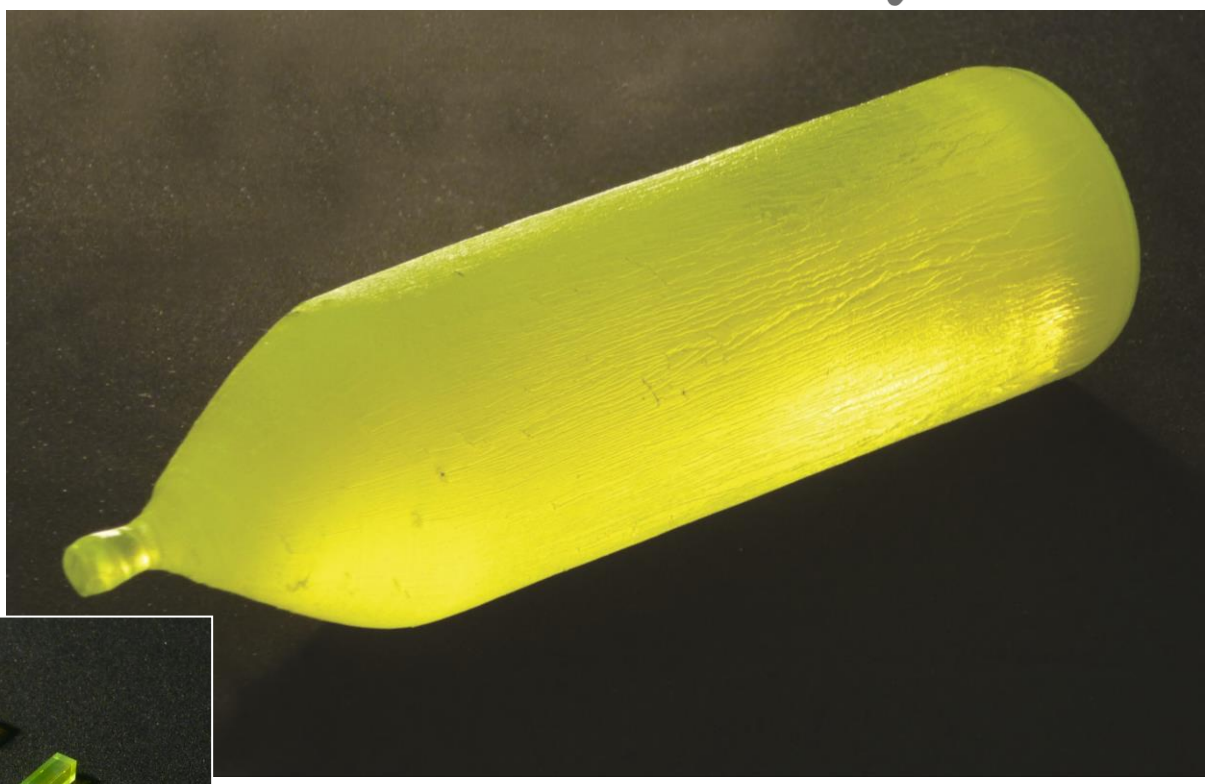
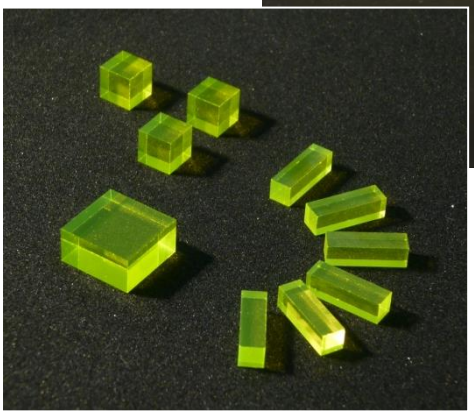
FURUKAWA SCINTITECH CORPORATION

Ce:GAGG Scintillator Crystal





Physical and Scintillation Properties

Scintillators	$Ce:Gd_3(Ga,Al)_5O_{12}$ (Ce:GAGG)	$Ce:Lu_{1.8}Y_{0.2}SiO_5$ (Ce:LYSO)	$Bi_4Ge_3O_{12}$ (BGO)	$Ce:LaBr_3$
Density (g/cm^3)	**6.63**	7.1	7.13	5.08
Light yield (photon/MeV)	**48,000**	34,000	8,000	75,000
Decay time (ns)	**88 (60%) 228 (40%)**	40	300	30
Peak emission (nm)	**520**	420	480	375
Energy resolution (%@662keV)	**5.4** **(5x5x5mm^3 with APD)**	10	12	2.6
Hygroscopicity	**No**	No	No	Yes
Cleavage	**No**	No	No	No
Melting point (℃)	**1,850**	2,150	1,050	783

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Features

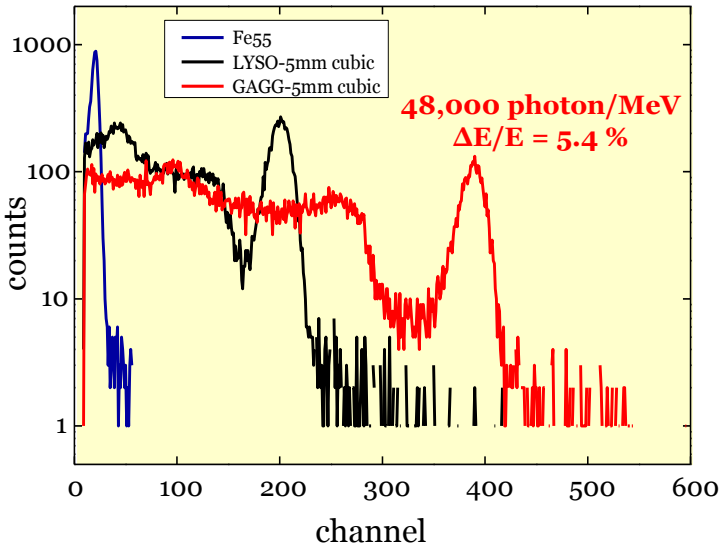
- Light yield: 48,000 photon/MeV
- Energy resolution: 5.4 %
- Non intrinsic radioactivity

Specification

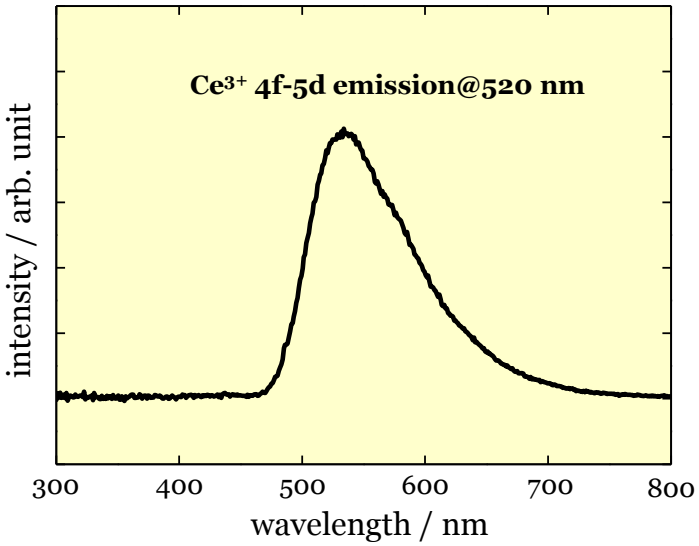
- Diameter : < ϕ55 mm
- Length : < 150 mm

Application

- PET, PEM
- SPECT
- CT



Energy spectra of Ce:GAGG using APD excited by ^{137}Cs



Radioluminescence spectrum of Ce:GAGG excited by Cu K_α X-ray.

Physical Properties of GAGG

Chemical formula	$Gd_3(Ga,Al)_5O_{12}$
Structure / Space group	Cubic / Ia3d
Density	6.63 g/cm^3
Z_{eff}	53.4
Radiation length, X_0	1.59 cm
Refractive index	1.93 @520 nm

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