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## Performance of Novel Oxide Scintillator Ce:(La,Gd)<sub>2</sub>Si<sub>2</sub>O<sub>7</sub> with a high energy resolution

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Recently, we have developed a novel oxide scintillator (La,Gd)<sub>2</sub>Si<sub>2</sub>O<sub>7</sub> (La-GPS) crystal doped with 1-mol% Ce grown by floating zone method. This crystal had excellent scintillation properties measured with a photomultiplier (PMT, Hamamatsu R7600U): a high light output of approximately 36,000 photons/MeV, good energy resolution (FWHM) of 5.0% at 662 keV and fast decay time of 46 ns. Moreover, this material had no hygroscopic nature and intrinsic background. The maximum emission wavelength was approximately 390 nm. In addition, the Ce:La-GPS crystal had a good energy resolution (FWHM) of 7.7 % at 662 keV, even though we used a multi-pixel photon counter (MPPC, Hamamatsu S10362-33-050C) at 26.0 %.

La-GPS can be the most appropriate choice in low-counting-rate applications such as a Compton camera and radiation monitor. In this presentation, we report the performance of La-GPS scintillator.

### quote your primary experiment

Novel Scintillators

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