

Abstract Submitted
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Improving Scintillation Performance of Ce-doped Garnet Crystals¹ DENYS SOLODOVNIKOV, MARC WEBER, DAVID BAHR, GRANT NORTON, DREW HAVEN, Washington State University, JALAL NAWASH, ROMIT DHAR, KELVIN LYNN, Washington State University — The Center for Materials Research has developed a new mixed garnet scintillator host material – Yttrium Gadolinium Gallium Aluminum Garnet (YGGAG). In addition to high thermal and chemical stability and radiation hardness found in garnet crystals it offers high neutron sensitivity due to presence of Gd atoms, has about 100 ° C lower melting temperature than standard yttrium aluminum garnet host and similar crystallization behavior suitable for growth of large volume crystals. Crystals of YGGAG doped with Ce and Tb of 10x10x10 mm in size already demonstrated energy resolution of 10% at 662keV. Our group demonstrated strong correlation between scintillation performance and deferent types of defects in Ce:Er:YAG scintillators. Work on further improving YGGAG performance by eliminating defects is currently in progress.

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