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Ultrafast and Radiation Hard Inorganic Scintillators for Future HEP Experiments

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Future HEP experiments at the energy and intensity frontiers require fast and ultrafast inorganic crystal scintillators with excellent radiation hardness to face the challenges of unprecedented event rate and severe radiation environment. This paper reports recent progress in fast and ultrafast inorganic scintillators, such as LYSO:Ce crystals and LuAG:Ce ceramics for a shashlik sampling calorimeter and yttrium doped BaF₂ crystals for the proposed Mu2e-II experiment. Applications of ultrafast inorganic scintillators for Gigahertz hard X-ray imaging will also be discussed.

Secondary topics

Scintillators

Applications

Experience with current calorimeter at the energy frontier

Primary topic

Crystals

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