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Inorganic Scintillators for Future HEP Experiments

Future HEP experiments at the energy and intensity frontiers present stringent challenges to inorganic scintillators in radiation tolerance, ultrafast time response and cost. This paper reports recent progress in radiation hard, ultrafast, and cost-effective inorganic scintillators for future HEP experiments. Examples are LYSO crystals for a precision time of flight detector, LuAG ceramics for an ultracompact, radiation hard shashlik sampling calorimeter, BaF₂:Y crystals for an ultrafast calorimeter, and cost-effective scintillators for a homogeneous hadron calorimeter. Applications for Gigahertz hard X-ray imaging will also be discussed.

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