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SiPM readout of fast high efficiency scintillator crystals

We performed extensive studies of SiPM readout of fast high efficiency scintillator crystals: LaBr3:Ce; Ce:GGAG; LYSO, YSO, etc. Scintillation parameters (energy and time resolutions) of such crystals were measured with SiPMs of different types and sizes (from 1x1 mm^2 to 6x6 mm^2) produced by different manufactures (Hamamatsu, KETEK, SensL etc). Energy and time resolutions of crystals were measured under alpha- and beta irradiations. Temperature dependence of scintillation parameters of crystals readout by SiPMs were measured as well as temperature dependence of parameters of SiPMs (PDE,Gain, Dark current counting rate, etc).

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