Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Study of temperature dependence of a $LaBr_3$ crystal for high-energy-resolution γ-ray detection TAKESHI SAITO, YUUKI WADA, MEGUMI NIIKURA, RYO TANIUCHI, HIROYOSHI SAKURAI, Department of Physics, the University of Tokyo — We will report on a temperature dependence of an inorganic crystal scintillator for γ-ray detection, $LaBr_3$. The scintillators used in this measurement has different shape made by Saint Gobain, and they were coupled to the Hamamatsu photomultipliers. The temperature dependence of the photo peaks was measured by detecting 511 and 1275 keV photons from the ^{22}Na source, taking their signals to QDC and tracing the total absorption peaks while chang of the room temperature with the daily range was measeured by a digital thermometer. After correcting the delay in the response from the temperature to the scintillators, the dependence of the gain shift on the room temperature was clearly observed. The temperature dependence must be compensated in order to obtain the intrinsic resolution of scintillators of $LaBr_3$.

Takeshi Saito
Department of Physics, the University of Tokyo

Date submitted: 01 Jul 2014 Electronic form version 1.4