Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Development of the new gamma-ray calorimeter for the measurement of Pigmy Dipole Resonance MIZUKI SHIKATA, TAKASHI NAKAMURA, YASUHIRO TOGANO, YOSUKE KONDO, Tokyo Institute of Technology — A new γ-ray calorimeter CATANA (**CA**lorimeter for gamma γ-ray **T**ransition in **A**tomic **N**uclei at high isospin **A**symmetry) has been developed to measure highly excited states like the pygmy dipole resonance and the giant dipole resonance. CATANA will be used with the SAMURAI spectrometer at RIBF. The excitation energy spectrum will be reconstructed combining the invariant mass of the reaction products measured by SAMURAI and γ-ray energies from CATANA. CATANA has focused on achieving a high detection efficiency. It is calculated as 56% for 1 MeV γ-rays from beam with a velocity of $\beta = 0.6$. The CATANA array consists of 200 CsI(Na) crystals and covers angles from 10 to 120 degrees along the beam axis. In this study, we have tested prototype crystals of CATANA to evaluate their performance. A position dependence of the light input have been measured and compared with a Monte-Carlo simulation based on GEANT4. In this talk, we will report the design of CATANA and the result of the tests and the simulation.

Mizuki Shikata
Tokyo Institute of Technology

Date submitted: 24 Jun 2014 Electronic form version 1.4