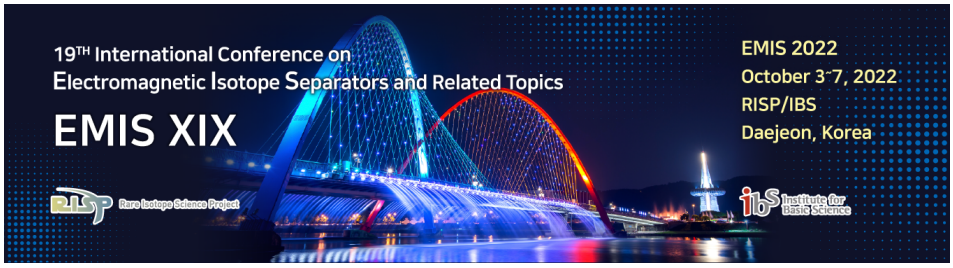

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Development of large GAGG:Ce calorimeter for measurements of the cluster knockout reactions

Tuesday, 4 October 2022 18:24 (8 minutes)

We have launched the "ONOKORO"project to understand cluster formation phenomena in nuclei and nuclear matter from measurements of the cluster knockout reactions ((p,pX) reactions(X=d, t, ^{3}He, α)).

In order to measure the reactions using inverse-kinematics, we have developed the "TOGAXSI"telescope consisting of Si trackers and large GAGG:Ce calorimeters. The required performance of the calorimeter is high energy resolution(~1A MeV (rms)) under the high count rate (~100 kcps) and wide energy range (100A-250A MeV).Therefore, we have developed new calorimeter using large GAGG:Ce crystal(35 mm $\times$ 35 mm $\times$ 120 mm) which is high resolution(8~9 % (662 keV, FWHM)), high density (~6.63 g/cm^3) and fast response(decay time~90 ns).

In this presentation, we report recent results of the performance test with proton and α beam at HIMAC, QST.

Primary author: TSUJI, Ryotaro (Department of Physics, Kyoto university)

Co-authors: TANAKA, Junki (Riken, Nishina-Center); HIGUCHI, Koshi; HIJIKATA, Yuto (Kyoto University); Mr KAWASE, Shoichiro (Kyushu University); Mr MATSUMURA, Riku (Saitama University); UESAKA, Tomohiro (RIKEN); Mr TAKAHASHI, Hiroyuki (Tokyo City University); Mr ZENIHIRO, Juzo (Kyoto University); Mr YAHIRO, Kanta (Kyoto University); TAKADA, EiIchi (QST); OTSU, Hideaki (Riken, Nishina-Center)

Presenter: TSUJI, Ryotaro (Department of Physics, Kyoto university)

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