



Contribution ID: 152

Type: **Poster contribution**

Challenges and performance evaluation of a calorimeter using over 100 GAGG crystals for intermediate-energy experiments

Tuesday, 21 October 2025 19:36 (1 minute)

Cluster formation is a fundamental phenomenon in nuclear physics and is crucial for understanding nuclear structure and dynamics. To study cluster formation in nuclei, we use quasi-free knockout reactions with a proton probe to directly measure clusters formed in the nucleus. This approach, combined with inverse kinematics, allows measurements over a wide range of nuclei.

To implement this method, we are constructing a TOGAXSI telescope consisting of a silicon strip tracker and a calorimeter made of GAGG(Ce) scintillators. GAGG(Ce) is particularly suitable for (p, pX) reaction measurements due to its high density, fast response, high light output, and non-hygroscopic properties. The TOGAXSI telescope consists of over 100 large GAGG(Ce) crystals.

We have encountered challenges in the energy calibration and mass integration of the GAGG(Ce) crystals. We performed inverse-kinematics cluster-knockout measurements at RIKEN RIBF using TOGAXSI. In this talk, we will report on the development status and performance evaluation of the GAGG(Ce) calorimeter based on the insights obtained through this experiment.

Email address

taiki.sugiyama@riken.jp

Supervisor's Name

Tomohiro Uesaka

Supervisor's email

uesaka@riken.jp

Funding Agency

JSPS

Classification

Instrumentation for radioactive ion beam experiments

Primary author: SUGIYAMA, Taiki (RIKEN / Saitama univ.)

Co-authors: KUBOTA, Yuki (RIKEN Nishina Center); UESAKA, Tomohiro (RIKEN); KONDO, Yosuke (Riken); KOYAMA, Shunpei (Riken); TANAKA, Junki (Research Center for Nuclear Physics); ZENIHIRO, Juzo (Kyoto); TSUJI, Ryotaro

(Kyoto Univ.); YANO, Takayuki (Kyoto University); HIJIKATA, Yuto (Riken, Nishina-Center); NAKADA, Tomoya (Kyoto Univ.); SAKAUE, Akane (RIKEN and Center for Nuclear Study, the University of Tokyo); MIKI, Kenjiro (Tohoku University); BABA, Hidetada (RNC, RIKEN); COLLABORATION, ONOKORO

Presenter: SUGIYAMA, Taiki (RIKEN / Saitama univ.)

Session Classification: Poster Session

Track Classification: Instrumentation for radioactive ion beam experiments