

Abstract Submitted  
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**The performance study of an electromagnetic calorimeter BGOegg** YUJI MATSUMURA, TAKATSUGU ISHIKAWA, MANABU MIYABE, NORIHITO MURAMATSU, HAJIME SHIMIZU, YUSUKE TSUCHIKAWA, RYUJI YAMAZAKI, KEN'ICHIRO SHIRAISHI, Research Center for Electron Photon Science, Tohoku University, KYOICHIRO OZAWA, Institute of Particle and Nuclear Studies, KEK, SHINICHI MASUMOTO, TAKUYA SHIBUKAWA, Department of Physics, University of Tokyo, KEIGO MIZUTANI, TOSHIKAZU HASHIMOTO, Department of Physics, Kyoto University, HIROTOMO HAMANO, Research Center for Nuclear Physics, Osaka University, THE LEPS2/BGOEGG COLLABORATION<sup>1</sup> — It is considered that the mass of the  $\eta'$  meson decreases in nuclear matter due to the partial restoration of chiral symmetry. As a result of the effect, the  $\eta'$  mesic nucleus, the bound state of an  $\eta'$  meson and a nucleus, is expected to be formed. We mainly search for an  $\eta'$  mesic nucleus in the missing mass spectrum of forward going protons using a photon beam with energies from 1.4 to 3.0 GeV and a nuclear target. The experimental background can be reduced by tagging the  $\eta$  meson generated in the  $\eta'N \rightarrow \eta N$  conversion process, where the  $\eta$  meson is identified by detecting  $2\gamma$  with an electromagnetic calorimeter BGOegg. The BGOegg consists of 1320 BGO crystals and covers a polar angle from 24 to 144 degrees around the target. The energy and position resolutions of the BGOegg are previously measured to be 1.3% and 3.1mm at 1GeV, respectively. We study the performance of the BGOegg with data collected up to now from December 2013. In this talk, we will present the result of the performance study of the BGOegg calorimeter.

<sup>1</sup>All members of the collaboration are listed on <http://www.lns.tohoku.ac.jp/bgoegg/collaboration.html>

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