

Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

A development of a Hadron Blind Detector for J-PARC E16 experiment KAZUYA AOKI, HIDETO ENYO, RIKEN, TAKU GUNJI, HIDEKI HAMAGAKI, CNS, YASUTO HORI, YUSUKE KOMATSU, SHNICHI MASUMOTO, KYOICHIRO OZAWA, TAMOTSU SATO, Univ. of Tokyo, MICHIKO SEKIMOTO, KEK, TOMOYA TSUJI, CNS, KAZUKI UTSUNOMIYA, YOUSUKE WATANABE, Univ. of Tokyo, SATOSHI YOKKAICHI, Riken — Spontaneous breaking of the chiral symmetry is considered to be the origin of hadron mass, however, the experimental confirmation is not given yet. J-PARC E16 experiment was proposed to investigate the origin of the mass through the mass modification of vector mesons in a finite density environment. The mass of the vector mesons are measured through electron-positron decay. A cherenkov detector with a high rate capability and fine segmentation is required for the electron identification. Hadron Blind Detector (HBD) is ideal for the purpose, which is a windowless cherenkov detector with a stack of GEMs on top of which CsI is evaporated. CF_4 works as amplification gas and cherenkov radiator in the HBD. We developed a prototype of HBD for J-PARC E16 experiment. It is constructed with a stack of an CsI-evaporated LCP-GEM with a thickness of $100\mu\text{m}$ and double kapton-GEMs with a thickness of $50\mu\text{m}$. Very stable operation without severe damage from sparks is possible due to the lower voltage operation compared to triple $50\mu\text{m}$ kapton-GEMs. A beam test was performed with an electron beam at Tohoku Univ. The performance of the prototype will be reported and discussed.

Kazuya Aoki
RIKEN

Date submitted: 02 Jul 2009

Electronic form version 1.4