

Abstract Submitted  
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**Developments of Hadron Blind Detector for  $\phi \rightarrow e^+e^-$  measurements at J-PARC** TAMOTSU SATO, Ozawa.lab University of Tokyo — We are proposing a new experiment at J-PARC to measure mass modifications of  $\phi$  meson in nucleus using  $\phi \rightarrow e^+e^-$  decays. In the experiment, a Hadron Blind Detector (HBD) is proposed for the electron identification. The HBD is originally developed for the PHENIX experiment at BNL and modified for the experiment. Current design has a 50cm Cerenkov radiator operated with pure  $CF_4$  directly coupled to a 3layers-GEM detector with CsI photocathode and a pad-readout is used. CsI is directly evaporated on the top of GEM foil and used as a photocathode. In our case, the GEM foil has  $100\mu m$  thickness and this is a highly new feature done by our group. The main advantage of this scheme is that  $100\mu m$  thickness GEM has larger effective gain than  $50\mu m$  thickness GEM. By virtue of this, photoelectrons from Cerenkov radiation to be amplified higher by the first photocathode-GEM foil. Thus, we carry out a stable operation. We measured the quantum efficiency of CsI photocathode GEM in pure  $CF_4$  and a test experiment using electron-beam at LNS GeV- $\gamma$  beam-line at Tohoku University is done to evaluate performance of the HBD. As a result of the test, we succeeded in detecting Cerenkov radiation using the HBD.

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