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# Commissioning of the Electron Identification System for Dilepton Measurement in pA Collisions at J-PARC

We will report the performance of the electron identification system in commissioning runs of the J-PARC E16 experiment, which were performed in 2020 and 2021.
The spectrum of vector mesons in nuclear matter is a hot topic in hadron physics. Many theoretical approaches predict the spectral change in hot/dense medium which possibly originate from the chiral symmetry restoration. We will start the physics run of the J-PARC E16 experiment in 2023 to measure the spectral modification of vector mesons using various nuclei for targets. We detect electron-positron pairs from $\phi$ meson decays, produced in 30 GeV pA reactions. It is a key to separate electrons from huge hadronic backgrounds.
For the electron identification, we developed two-stage detectors comprising hadron blind detectors (HBDs) and lead-glass electromagnetic calorimeters (LGs). The HBD is a gas-type Cherenkov detector with a $CF_4$ radiator. Emitted Cherenkov photons are converted into electrons at a CsI photocathode, and these electrons are amplified by gas-electron multipliers (GEMs). The LG is able to separate electrons from hadrons based on the quantity of Cherenkov photons induced by electromagnetic showers.
We constructed and installed these detectors at the J-PARC high-momentum beamline and performed the commissioning runs for the spectrometer in 2020 and 2021. The HBDs and the LGs were successfully operated under huge backgrounds, generated in 10-MHz pA interaction at targets.

## Primary experiment

J-PARC E16

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