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Development of a windowless multiwire proportional counting (MWPC) system for the measurements of the surface emission rate of alph- and beta- area sources

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Content

A windowless multiwire proportional counting (MWPC) system is being developed to measure the surface emission rate of alph- and beta- area sources. We designed new anode plane and cathode plane to get the better electric field uniformity in the 250 mm x 200 mm of sensitive volume than that of the old MWPC at Korea Research Institute of Standards and Science (KRISS), which is being used as a national standard and shows an uncertainty level below 1 %. The operation high voltage of the alph and beta particles were determined based on the high voltage counting curve. In addition, the various detector characteristics are being studied with new MWPC. In this presentation, the preliminary results of the various detector characteristic will be shown. Additionally, the uncertainty estimation of the new MWPC will be discussed.

About the Presenter

I'm working at KRISS from Nov. 2015 and doing an upgrade of the MWPC system to measure the surface emission rate of alph and beta area source. Previously, I had developed a Time-Projection-Chamber, which is 3-dimensional tracking device, to measure the hadronic reaction with hadron beams at J-PARC in Japan. In addition, I designed the several scintillation and cherenkov detectors for the KURAMA spectrometer, which is the Kaon-meson spectrometer, in Japan.

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