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Measurement of the Low-energy Muon Spectra with the Rotatable NEWCUT Spectrometer

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The precise measurement of low-energy muon spectra is required to improve muography of small-sized objects. We developed a 5-meter-length, rotatable, MWPC-based spectrometer to precisely measure the energy spectra of muons from 0.5 GeV to 5 GeV between vertical and horizontal directions [1]. It is a consecutive series of nineteen detectors with a positional resolution of approx. 4 mm and lead plates. The structure of the spectrometer, data analysis methods, simulation and first measurement results will be discussed.

[1] L. Oláh et al.: Improvement of cosmic-ray muography for Earth sciences and civil engineering, PoS 358, <https://doi.org/10.22323/1.358.0377>

Primary authors: VARGA, Dezső (Wigner Research Centre for Physics, Budapest, Hungary); HAMAR, Gergő (Wigner Research Centre for Physics, Budapest, Hungary); GALGÓCZI, Gábor (Wigner Research Centre for Physics, Budapest, Hungary); SUENAGA, Hiroshi (Central Research Institute of Electric Power Industry (CRIEPI), Chiba, Japan); TANAKA, Hiroyuki (Earthquake Research Institute, The University of Tokyo, Tokyo, Japan); OLÁH, László (Earthquake Research Institute, The University of Tokyo, Tokyo, Japan); HAMAR, Gergő (Wigner Research Centre for Physics, Budapest, Hungary); MIYAMOTO, Shinichi (NEC Corporation (Global))

Presenter: OLÁH, László (Earthquake Research Institute, The University of Tokyo, Tokyo, Japan)

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