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Status of the ECal/MPD calorimeter calibration with cosmic ray muons

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The cylindrical electromagnetic calorimeter (ECal) is one of the key subsystem of the MPD detector having the main goal to search a quark-gluon plasma [1]. It consists of 50 half-sectors comprising 768 “shashlik”-type cells (towers). The towers are truncated pyramids of 64 different types and varying orientations. The calibration of individual half-sectors has been completed now, which is based on determining the peak position from the energy deposition of cosmic muon tracks. In the fully assembled half-sectors all towers are arranged at different orientation relative to the vertical direction, so the calibration coefficients slightly depend on the tower’s position [2]. This work presents the results of all half-sector calibrations with cosmic ray muons at test bench, normalization based on simulation results using comic-ray muon generator [3] and database structure.

[1] V. Abgaryan (MPD Collaboration), Eur.Phys.J.A 58, 140 (2022). [2] M. A. Martemianov et al., Phys.Atom.Nucl. 88, 96 (2025). [3] D. Pagano et al., Nucl.Instrum.Meth. A 1014, 165732 (2021).

Primary author(s) : Mr. MARTEMIANOV, Maxim (NRC “Kurchatov Institute”)

Co-author(s) : Mr. KUZNETSOV, Ilya (NRC “Kurchatov Institute”)

Presenter(s) : Mr. MARTEMIANOV, Maxim (NRC “Kurchatov Institute”)

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