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Performance of the FHCaI@MPD

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The Multi-Purpose Detector (MPD) experiment at the NICA collider is designed to investigate the QCD phase diagram at high net baryon chemical potentials and moderate temperatures. The Forward Hadron Calorimeter (FHCaI) is a key sub-detector dedicated to measuring the energy and spatial distributions of spectator nucleons, providing essential information on collision geometry, such as the reaction plane and centrality. The FHCaI comprises two symmetric arms, each containing 44 modules with a lead-scintillator sandwich structure segmented into 7 longitudinal sections. To accurately determine the energy deposited by spectators, precise calibration of each FHCaI module is required. The FHCaI detector layout and assembly status will be presented. The methods and experimental results for FHCaI detector calibration, trigger tuning, and stability tests using cosmic rays will be reported. Progress in the centrality determination procedure using physics simulations will be discussed.

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