Contribution ID: **475** Type: **Oral**

Tests of modules of Forward hadron calorimeter at MPD/NICA.

Thursday, 18 April 2019 17:30 (15 minutes)

At present, in Dubna, Russia a new acceleration complex NICA is being constructed. One of its two detectors and most integral parts of the collider (NICA) is a Multi-Purpose Detector (MPD). MPD experiment is intended for study of properties of dense baryonic matter. One of the most important parts of MPD is Forward Hadron Calorimeter (FHCal), whose purpose is to measure centrality and determine orientation of reaction plane of collisions.
Forward Hadron Calorimeter consists of two arms: left and right, which are situated symmetrically respective the beam collision point. Both arms have module structure, consist of 44 modules. Every module has a sandwich structure of 42 pairs of lead-scintillator plates and has a total length near four nuclei interaction lengths, which correspond to NICA energies. Each module has a transversal size of 15x15 cm2, which is chosen to be bigger than transversal size of hadronic shower that propagates inside modules. FHCal needs to register particles in a wide dynamic range. Registering low energy signals is a challenging mission to accomplish. In order to minimize the noise/signal ratio every scintillator plate has a spiral WLS-fiber imbedded in spiral grooves. Fiber has a thin mirror adjacent to it at one end in order to reflect signal from it and is connected to MPPC(multi-pixel photomultiplier) in order to ensure maximum efficiency of photoelectron detection.

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Session Classification: High energy physics

Track Classification: High Energy Physics