Contribution ID: **449** Type: **Oral talk (15 min + 5 min questions)**

Online data processing and monitoring of the BM@N experiment

Friday, 15 July 2022 16:20 (20 minutes)

The BM@N (Baryonic Matter at Nuclotron) experiment is the fixed target experiment and the first stage of the NICA (Nuclotron-based Ion Collider fAcility) accelerator complex located in the Joint Institute for Nuclear Research in Dubna. The experimental facility is designed to explore properties of dense strongly interacting matter in heavy ion collisions.
The data decoding and event reconstruction algorithms are being developed as part of the BmnRoot on top of the FairRoot framework – a ROOT program package developed primarily for the FAIR experiment. The monitoring system's frontend is based on the CERN jsROOT library. The online data processing pipeline is organized as several processes exchanging data via the ZeroMQ sockets. This approach makes the system flexible and easier to add new elements to the system as well as distribute calculation on several nodes. Also it is more convenient to monitor experiment by a distributed team. The QA system allows users to select reference run from past runs and impose it on the current run in order to detect possible deviations in the histograms.
One of the crucial parts of data processing is the signal filtering in the strip detector subsystems such as Gas Electron Multipliers (GEM), silicon strip detectors and Cathode Strip Chambers (CSC). They constitute inner tracker – the key part for track reconstruction. The decoding workflow includes iterative filtration, executing noise reduction.

The speaker is a student or young scientist

No

Section

1. Intermediate and high energies, heavy ion collisions

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Session Classification: Intermediate and high energies, heavy ion collisions