



Contribution ID : 808

Type : Oral talk

High-performance optimization of simulation and reconstruction modules in the BM@N software at the NICA

Friday, 9 October 2020 17:40 (15)

The Baryonic Matter at the Nuclotron (BM@N) experiment [1] is first experiment at the NICA (Nuclotron-based Ion Collider fAcility) [2], where runs with collection of experimental data have been performed. The software package BmnRoot [3] is used both for simulation of setup operation and analysis of experimental data. Due to complexity of algorithms event reconstruction is time-consuming and should be optimized to improve its performance [4].

Extended hotspot analysis has been performed of the simulation and new event reconstruction modules in the BmnRoot package. The results of hotspot analysis are analyzed. Both algorithmic and high-performance optimizations have been applied. Scalability and efficiency of optimized modules on simulated and experimental data are studied.

This work is supported by Russian Foundation for Basic Research grant 18-02-40104 mega.

References.

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Session Classification : Facilities and Advanced Detector Technologies

Track Classification : Facilities and advanced detector technologies