

Parallel events reconstruction in BMNRoot framework using the PROOF system

Wednesday, 13 October 2021 11:45 (15 minutes)

BM@N (Baryonic Matter at Nuclotron) is the first experiment undertaken at the accelerator complex of NICA-Nuclotron. The purpose of the BM@N experiment is to study the interactions of relativistic heavy ion beams with a fixed target.

The BmnRoot framework is a software based on the FairRoot framework and developed for providing detector performance studies, event simulation, reconstruction and physics analysis of events recorded by the BM@N facility.

One of the main problems arising in BmnRoot event reconstruction is respectively long data processing time up to several seconds per collision event. If it is required to process millions of events, then the sequential processing time could reach months. In order to increase the performance, the PROOF tool was applied for the BmnRoot reconstruction macro. PROOF uses data parallelism based on the lack of the correlation for BM@N events, which could provide good scalability. The report presents the results of the work on acceleration of the event reconstruction via the PROOF package on multicore CPU.

Primary author: MYASNIKOV, Aleksey

Co-authors: GERTSENBERGER, Konstantin; MERTS, Sergei (JINR, LHEP); Mr DRYUK, Andrey; NEMNYUGIN, Sergei (Saint-Petersburg State University)

Presenter: MYASNIKOV, Aleksey

Session Classification: Information Technologies

Track Classification: Information Technology