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Implementation of high-performance computing technologies in the BmnRoot framework

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The purpose of the BM@N experiment at NICA accelerator complex in Joint institute for Nuclear Research (Dubna, Russia) is study of heavy-ion collisions with fixed targets. Successful study requires efficient algorithms of event reconstruction and particle identification using data from the detector subsystems of the facility as well as its efficient and high-performance software implementation in the BmnRoot package. Development and study of such algorithms, their software implementation and optimization of the existing software components of the BmnRoot are subjects of the report. Implementation of simulation and reconstruction algorithms for hybrid computing systems are also discussed.
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