

Abstract

Drift Chambers in the BM@N experiment

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The Baryonic Matter at Nuclotron (BM@N) represents the first step of the implementation of the Nuclotron-based Ion Collider fAcility (NICA) mega-science project. The BM@N experimental setup consists of numerous detector systems meant to reconstruct particle trajectories and identify their type.

The main detector system, which formed the outer tracker during the last physical runs, was the Drift Chambers. A special reconstruction algorithm for these detectors was developed and implemented into the official BM@N software package. A detailed description of the algorithm is given, along with some solutions of particular problems that arose during its development. Before proceeding to the reconstruction of physics data, the main detector performance parameters were estimated. These parameters as well as some additional commissioning procedures, are presented. Once the reconstruction for the Drift Chambers was finalized and optimized, the reconstructed objects from the Drift Chambers were used in the particle identification chain. Preliminary results for the short-range correlation search and the particle identification analysis are also presented.