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Hit finder and track reconstruction algorithms in the Multi-Wire Proportional Chambers of BM@N experiment

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BM@N (Baryonic Matter at Nuclotron) is an experiment being developed at Joint Institute for Nuclear Research (Dubna, Russia). It is considered the first step towards implementing the fixed target program at NICA accelerating complex (Nuclotron-based Ion Collider Facility). One of the important event reconstruction procedure components is the monitoring of the beam trajectory and the vertex position in transverse plane. A system consisting of two Multi-Wire Proportional Chambers (MWPC) is used for this purpose in BM@N. In this work we describe the hit finder and track reconstruction algorithms in the MWPC. Results of Monte-Carlo tests and efficiency calculations for different input parameters are presented. MWPC track analysis procedure of the BM@N experimental data from RUN-2018 is started and the first results are shown.

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