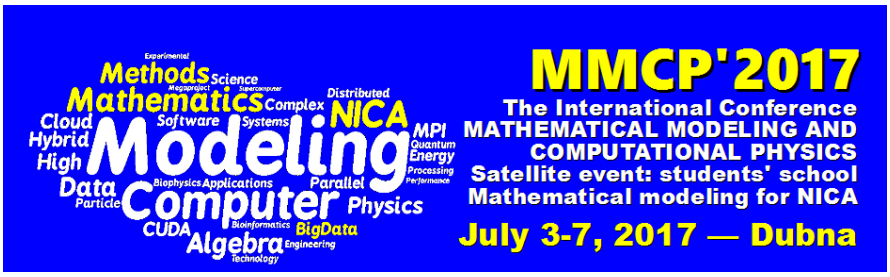

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NUCLOTRON BEAM MOMENTUM RECONSTRUCTION USING MULTIWIRE PROPORTIONAL CHAMBERS AND DRIFT CHAMBERS IN THE BM@N EXPERIMENT

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Relativistic heavy ion collisions provide the unique opportunity to study nuclear matter under extreme density and temperature. If the energy density in the formed fireball is sufficiently large the quark-gluon substructure of nucleons becomes visible. Theoretical models, however, suggest different possible scenarios to describe these features of strongly interacting matter. New experimental data with high resolution and statistics are needed in order to disentangle different theoretical predictions [1,2]. The BM@N is a fix-target experiment that is meant to fulfil this need.
The BM@N project is considered as a 1st phase of NICA Mega science project. The energy of the beam will vary from 1 to 6 GeV/u. The beams delivered by Nuclotron will be of different types from simple protons to heavy Au. The ability to reconstruct the beam momentum with high precision is one of the methods for showing that the tracking detectors are tuned in the right way and the reconstruction procedure performs well.
The quick overview of the experimental setup is given in the work along with the description of the main tracking detectors. The performance parameters of the detectors and reconstruction algorithms are brought up. The beam momentum reconstruction procedure is described and the results of this procedure are presented for different values of beam energy.

References

1. Adams J. et al. // Nucl. Phys. A. Vol. 757. 2005. Pp. 102-183.
2. Adcox K. et al. // Nucl. Phys. A. Vol. 757. 2005. Pp. 184-283.

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