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Methods for centrality determination in heavy-ion collisions with the BM@N experiment

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Centrality is an important concept in the study of strongly interacting matter created in a heavy-ion collision whose evolution depends on its initial geometry. Experimentally collisions can be characterized by the measured multiplicities or energy of produced particles or spectator fragments. Relation between collision geometry and experimentally measured multiplicities is commonly evaluated within the Monte-Carlo Glauber approach.

We will present methods for centrality determination in heavy-ion collisions with the Baryonic Matter at Nuclotron (BM@N) experiment. The multiplicity of charged hadrons is provided by the BM@N Silicon Tracking System (STS) and Gaseous Electron Multiplier (GEM) detectors and connected to collision geometry parameters using the Monte-Carlo Glauber model. The energy of projectile spectator fragments is estimated with the BM@N Forward Hadron Calorimeter (FHCal) and Hodoscope detectors. We will also touch possibilities to determine centrality using the spectators' fragments and Monte-Carlo Glauber model.

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