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Monte Carlo studies of the GEM acceptance and Developing of the Trigger System at BM@N

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BM@N Experiment is the first, which will be realized at the accelerator complex of NICA-Nuclotron-M in **Joint Institute for Nuclear Research** in Dubna, Russia.

The aim of the BM@N experiment is **to study interactions of relativistic heavy ion beam with fixed target**. Particle identification is provided by combining the information from Central Tracking modules (inside of analyzing magnet), Outer Tracking modules (outside magnetic field) and Time of flight detectors. The Inner tracking modules are based on Silicon micro-strip sensors and **Gas Electron Multipliers (GEM)** detectors. The outer tracking system is based on the drift chambers and straw tube detector. Choosing the best configuration layout for both GEM and Si stations is one of the crucial issues for the tracking resolution. Thanks to the Monte Carlo simulations in terms of the GEM acceptance it was able to find adequate detector arrangements.

Additional aim in BM@N experiment is **Short Range Correlation studies** via hard scattering in inverse kinematics. SRC-pairs are pairs of nucleons tied together inside of nuclei. It is proposed to apply the heavy-ion beam and proton fixed-target to break up the pairs and observe all components after collision. This type of experiment requires a particular detector setup for the defined kinematics of interaction. In that case the **high-effective trigger system** is essential. For SRC at BM@N experiment trigger system is based on scintillation modules. Constructing and testing them was an important step to collect proper data.

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