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The new hybrid tracking system of the Baryonic Matter at the Nuclotron (BM@N) experiment at JINR

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In order to study the high-density nuclear equation-of-state in collisions between gold nuclei at Nuclotron beam energies (2–4.5A GeV), the existing BM@N experiment at JINR in Dubna has to be substantially upgraded. The measurement of high-multiplicity events at reaction rates up to 50 kHz requires the installation of four new tracking stations equipped with double-sided micro-strip silicon sensors, which have been developed for the CBM experiment at FAIR. It has been demonstrated by simulations using the UrQMD event generator together with the GEANT transport code, that the hybrid tracking system comprising four silicon stations and seven (already partly existing) GEM tracking detectors will be able to reconstruct charged particles including hyperons emitted in Au+Au collisions with good efficiency and high signal-to-background ratio. The results of the simulations and the status of the detector development will be presented.

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