

First results and plans of the BM@N experiment at NICA

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The BM@N experiment is dedicated to a study of the hot and dense baryonic matter produced in heavy ion collisions using the NICA extracted beams from deuteron to Bismuth with kinetic energies of 1,5–4,5 AGeV. At such energies, the baryon density up to 3–4 times the nuclear saturation density is achieved. This allows one to search for the critical phenomena related with the mixed quark-gluon and hadronic phase in the region of a high baryonic chemical potential. It also allows one to constrain the matter Equation of State in the region of high baryon densities. First results on the production of positive pions, kaons, protons, deuterons and tritons in 3,2 AGeV Argon-nuclei collisions are presented and compared with the transport code predictions and parameterized with a Blast Wave Model. Based on the measured proton, deuteron and triton spectra, the deuteron and triton coalescence parameters and compound yield ratio $N_p N_t / N_d^2$ are given. Also shown are preliminary results on Λ -hyperon and neutral kaon spectra, anisotropic flows of protons and deuterons in Xe+CsI interactions at 3,8 AGeV. Recently, high statistics data on Xe+Sn interactions have been collected at the kinetic energies of the Xe beam of 1,6; 2,2 and 3 AGeV. In the next years, studies of Bi+Bi interactions at 1,6–3,8 AGeV are foreseen.