

## Prospects for dense baryonic matter research at Nuclotron-NICA: BM@N & MPD experiments

*Friday, 31 October 2014 11:00 (1 hour)*

The NICA (Nuclotron-based Ion Collider fAcility) Project is now under the active realization stage at the Joint Institute for Nuclear Research (JINR, Dubna). The main goal of the Project is an experimental study of hot and dense strongly interacting matter in heavy ion (up to Au) collisions at centre-of-mass energies  $\sqrt{s}_{NN} = 4 - 11$  GeV (NN-equivalent) and the average luminosity  $10^{27} \text{ cm}^{-2} \text{ s}^{-1}$  for Au(79+). In parallel, fixed target experiments at the upgraded JINR superconducting synchrotron Nuclotron will be carried out with extracted beams of various nuclei up to Au(79+) with maximum momenta 13 GeV/c (for protons). Two modes of operation are foreseen, collider mode and extracted beam mode, with two detectors: MPD and BM@N. The both experiments are in a preparation stage. The project also foresees a study of spin physics with extracted and colliding beams of polarized deuterons and protons at energies up to  $\sqrt{s} = 26$  GeV (for protons) and the average luminosity  $10^{32} \text{ cm}^{-2} \text{ s}^{-1}$ . The proposed experimental program allows one to search for possible signs of phase transitions and critical phenomena as well as to shed light on the problem of the nucleon spin structure. The general NICA design and construction status, physical program will be overviewed.

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