

Heavy ion program at JINR NICA/MPD facility

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New project NICA/MPD (Nuclotron-based Ion Collider fAcility/MultiPurpose Detector) is now under realization phase at JINR (Dubna). The main goal of the project is to start in the coming years an experimental study of hot and dense strongly interacting matter and search for possible signs of the mixed phase and critical endpoint in heavy ion collisions. This study should be carried out at centre-of-mass ion collision energies of $\sqrt{s_{NN}} = 4-11$ GeV (NN-equivalent) and at average luminosity of 10^{27} cm⁻² s⁻¹ for Au (79+). The program also foresees start-up of fixed target experiments with the extracted beams from upgraded JINR synchrotron Nuclotron at energies up to 5.81 GeV/u (scaled to $A/Z = 2$) and intensity up to $5 \cdot 10^8$ s⁻¹ (for Au 79+). Another goal of the project is aimed to study the spin structure of nucleon and the other spin sensitive phenomena with colliding beams of polarized protons and deuterons. The SPD (Spin Physics Detector) setup aimed at that purpose is under design.

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