



Heavy ion collider facility NICA at JINR (Dubna): status and development

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New large accelerator complex: heavy ion collider facility NICA (Nuclotron-based Ion Collider fAcility) is under active development now at JINR (Dubna).

The main goal of the project is to start in the coming 5 years experimental study of hot and dense strongly interacting baryonic matter and search for possible signs of the mixed phase and critical endpoint in heavy ion collisions (Energy $\sqrt{s_{NN}} = 4-11$ GeV for Au^{79+} nuclei at average luminosity of $L = 10^{27} \text{ cm}^{-2} \text{ s}^{-1}$). Another physics goal of NICA are future experimental studies of spin physics with colliding beams of polarized protons and light nuclei, and also fixed target experiments on ion beams.

The report presents main characteristics of the project: collider facility scheme, operation scenario, proposed methods of accumulation of intense bunched ion beam, application of different RF technique and beam cooling methods to achieve maximal luminosity in the total energy range. Status of R&D and plans of the project development are presented as well.

Primary author: Dr TRUBNIKOV, Grigory (Joint Institute for Nuclear Research (RU))

Co-authors: SORIN, Alexander (Joint Inst. for Nuclear Research (RU)); KOVALENKO, Alexandre (Institute for Nuclear Research (INR)); MESHKOV, Igor (Joint Institute for Nuclear Research (JINR)); LEDNICKY, Richard (Elementary Particle Division); MATVEEV, Viktor (Russian Academy of Sciences (RU)); KEKELIDZE, Vladimir (Joint Inst. for Nuclear Research (JINR))

Presenter: Dr TRUBNIKOV, Grigory (Joint Institute for Nuclear Research (RU))

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