Review on the VB LHEP JINR project

NUCLOTRON-NICA

The main purpose of the NICA project is construction of an accelerator complex allowing to provide researches with colliding beams of high-intensity heavy ions (up to Au^{+79}) with the average luminosity up to $L=10^{27}cm^{-2}s^{-1}$ at an energy range of $\sqrt{s_{NN}}$=4–11 GeV. It will be possible to collide beams of polarized protons ($\sqrt{s_{NN}}$ up to 26 GeV) and deuterons ($\sqrt{s_{NN}}$ up to 12 GeV) with longitudinal and transverse polarization. Extracted beams of light ions including polarized protons and deuterons will be available as well.

The Nuclotron-NICA project is aimed to create an accelerator facility in configuration required for realization of the first part of the NICA experimental program including: fixed target experiment with heavy ions and colliding experiments with heavy ions of the same species in both collider rings. Specialized experimental areas have to be prepared for different applied researches including the radiobiological studies.

The Nuclotron-NICA project has been started in 2011. During these years, the following significant results were obtained and new facilities were created: the complete modernization of Nuclotron light and heavy ion injectors, booster and required transfer lines. The Nuclotron performance was improved significantly and it makes possible to start the program of the experimental investigations at BM@N detector.

The goals of the Nuclotron–NICA project for the coming three years are to complete fabrication of the transport lines and collider elements as well as to provide commissioning of the collider rings with start-up equipment configuration in 2022. The collider should be mounted according to the project configuration during 2023. Realization of this project in total will permit to start the fixed target and colliding experiments with relativistic heavy ions. The construction of main new elements has been started already. Detailed plan of the facility development was prepared and approved by JINR directorate.

Meanwhile the requested budget as well as the estimation of energy consumption, seems to be preliminary and should be verified from year to year in order to satisfy the requirements of all activities and facilities included into this project.

To sum up I would like to recommend the approval of Nuclotron-NICA project for the coming three years and to present it to the next Program Advisory Committee consideration.

JINR Assistant Director
Corresponding member of RAS,
Doctor of Sciences

G.D.Shirkov