

Project Review

The Development of the Facility for Measurements with Test Electron Beams at LNP. LINAC-200.

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The proposed project aims to expand the experimental base of the Laboratory of Nuclear Problems - the development of an accelerator equipped to conduct methodical studies of particle detectors at electron beams. LNP has a rich history of scientific and methodological researches and development of most various detectors. This applies not only to experiments conducted at JINR, but also to offsite experiments at accelerators of other world scientific centers. The key condition for the development of detectors is the ability to test their efficiency and research their properties in controlled conditions, using beams of charged particles with known characteristics. Unfortunately, the possibilities of such research at LNP have been severely limited for many years. As for test electron beams of high energy, such beams are absent not only at LNP, but at JINR in general. Therefore, the task to be accomplished by the authors of the proposed project is overdue and very important for the laboratory. In fact, the implementation of the project will lead to the emergence of a new basic facility at LNP, which will be useful for all employees of JINR and member states working on the development of new types of particle detectors.

To create test electron beams, the project authors plan to use the LINAC-200 accelerator, which was brought to LNP about 15 years ago. Currently, the first turn of the accelerator (LINAC-200) has already been mounted and is functioning. In 2017, the physical launch of the accelerator at the energy of 220 MeV was performed. In the course the project, the authors plan to complete the assembling of the accelerator, bringing the available energy of the electrons to 800 MeV, as well as replace a number of the accelerator nodes to ensure its reliable and uninterrupted operation (vacuum pumps, automation and etc.). An important, in fact, target component of the project is the development of beam output channels equipped for detector testing.

The authors team includes a team of specialists accelerators, who already have a great experience with the LINAC-200 accelerator, as well as employees of LNP MHPD and Colliding Beams Department, having experience in the development of detectors and testing them on beams of accelerators.

In my opinion, the authors of the project should pay special attention to two circumstances. Firstly, the beam quality has very important (basic parameters, such as its energy and its homogeneity, profile and intensity, as well as their stability in time). Secondly, in the implementation of the project should provide not only the beam output channel and equipment to

measure its characteristics, but also the organization of jobs for employees who test detectors. There should be allocated and equipped a premise in which it is possible to have the equipment of data capture and where the communications from channels of a beam output and control signals from an accelerator are brought.

The financial cost of project implementation is described in detail. I believe that the presented project should be fully supported as a project of the first priority of JINR, and wish the authors success and good luck in interesting and very important work.

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