Review

On the Project "SCAN 3"

The project aims to create three-arm spectrometer. One of the arms includes a magnetic spectrometer. The spectrometer will be recorded as charged hadrons (π, K, p) and neutral (n). The possibility of registering such a wide set of particles distinguishes the emerging detector, from those who currently use the internal target. The resulting detector is focused on the correlation measurements. It should be noted the specificity of the experimental studies at the internal target, which can significantly reduce the background is compared with the experiments at the extracted beam. That is a particularly important factor for correlation studies. Let us discuss this issue in some detail. When typing information about the birth of two particles, useful information (number of registered coincidences ($N_{1,2}$)) is proportional to the cross section of process ($\sigma_{1,2}$), the thickness of the target (l_t) and the intensity of the beam I. Due to the thickness of the internal target is much less than for the extracted beam, one can achieve significant benefits in the ratio of signal to background in correlation measurements. Thus the proposal to establish a correlation spectrometer for research takes into account the measurement of the internal target that is a winning factor. This fact is a strong argument in support of the project. Another argument in support of the project is that the authors have significant technical potential for the project (there is a magnet, most of the detector subsystems, some electronics).

The authors of the project have long-lasting positive experience at the internal target. This has a positive impact on the quality of preparation of the project and the proposed research program which includes:

1. search and study of η – nuclei;
2. investigation of changes in the properties of the Δ-isobar in the nucleus of the target.
3. the study np and pp correlations;
4. a study of cumulative processes.

Each of these tasks continues the program, which was implemented at the accelerator complex (LHE and in this VBLHEP). That is, each of these areas has passed multiple examination and was supported, moreover the results obtained in a number of areas that are proposed to be expanded and clarified. This will reduce the possible number of proposed theoretical models. Discussion of these issues is contained in the text.

As a further argument in support of the project noting that the project is implemented by an international collaboration that includes scientists from seven research centers. This can be interpreted as an argument in favor of the relevance of the proposed research, and as an argument in favor of the success of the project.

In my opinion the disadvantage of the proposed project is that the program contains no studies of polarization observables. These tasks can certainly be proposed and implemented in VBLHEP, after the appearance of the polarized beams. It seems that the authors will propose such tasks in the prolongation of the project.

I believe that the Project opens and continues an interesting and promising area of research in the physics of nucleus and particles. Therefore, I believe that the project should be approved and implemented in the form as proposed by the authors, without any changes and improvements.

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