

Referee report
on project
"Participation of JINR in the Physics Research Programme
at the BEPCII/BESIII"

The project justifies the continuation of the further participation of the JINR team in the scientific programme of the BESIII Collaboration working at the BEPCII electron-positron collider in Beijing. This collider is a unique machine which achieved a really high luminosity in a very interesting centre-of-mass energy domain. In particular, this machine allowed recently to get a lot of exciting results on the exotic XYZ hadronic states. The JINR group continuously participated in the experiment since 2005. The present project suggests the continuation of participation in the BESIII Collaboration in years 2020-2022. The JINR team will focus on the physics of charmonium production and decays and the search and study of exotic charmonia and charmoniumlike structures. Specifically, the measurement of the inclusive prompt production of charmonia at the collision energy above 4 GeV, the study of the J/ψ decay structure by determination of the phase between amplitudes of strong and electromagnetic interactions in the number of exclusive processes and the search for bound pp states will be carried out.

It is important to note that the JINR team made valuable contributions both for data analysis and for software development of the experimental set-up. The allowed to collect a lot of experience and get a good reputation within the BESIII Collaboration. It is obvious that BESIII is really interested in the continuation of the fruitful work of the team.

In general, collaboration with Chinese scientific organizations is certainly one of the strategic directions of the JINR policy. And the present project demonstrates the profit and perspectives of such collaborations.

The importance of the project is stressed also by the realistic possibility of the Super Charm-Tau Factory construction in Novosibirsk. The corresponding project is in the short list of Mega-Science projects in Russia. And the physical program of the new facility is very much related to the current research performed at BEPCII. So, participation in BEPCII/BESIII might appear to be a preparation for the future research at the Super Charm-Tau Factory.

The total man-power of the project is only 5.5 FTE. The team has already demonstrated the scientific effectiveness. Nevertheless, one should note that the weak point of the project is the lack of young participants. Involvement of a couple of new PhD students would be certainly worth.

The presented work plan for the next years (2020-2022) is well described and justified. The team will concentrate on tasks which are in its expertise domain. So, the feasibility of the plan is justified. The results of the work will be quite visible among the total scientific outcome of the BESIII Collaboration. And the visibility of the JINR team contribution to the whole research program of the Collaboration is rather high.

The financial request looks quite moderate and reasonable. It is requested only to cover travel costs of the JINR participants to Beijing.

Therefore I recommend to approve the project and support in with the highest priority.



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16.11.2018