

Continuation of JINR Participation in BESIII

Referee Report by Fuqiang Wang

The JINR group requests to continue its participation in the BESIII experiment. BESIII is a mature experiment at the electron-positron collider in Beijing, China. The experiment has produced extensive results on testing QCD and the standard model (SM) and probing physics beyond the SM. The JINR group has participated in BESIII from early-on and has produced high-quality physics results. During 2019-2022, the group has published on partial wave analysis of $J/\Psi \rightarrow K+K-\pi^0$ in PRD100(2019), on radiative J/Ψ decays and glueball estimation in PLB816(2021), and on radiative $\Psi(3686)$ decays and glueball search in PLB830(2022). The group has produced a few theses and several other results that are currently under internal collaboration review. The group made strong contributions to software development and maintenance in BESIII. The group is visible via conference and workshop talks.

The continuation proposal focuses on studies of hadron spectroscopy, exotics, charmonium production and decays, and charm fragmentation, and on reconstruction software development with machine learning. These are natural extension of the group's physics interests and expertise, and will likely produce visible results. The proposed budget is appropriate. The scientific staffing is reasonable, but would benefit from an increased recruitment of students and junior researchers.

Based on the track record of the JINR group and the maturity of the BESIII experiment, I recommend the proposal be granted with the highest priority.