

Daya-Bay/JUNO Project.

1) Goals of the experiment

The research includes the participation in the Daya-Bay neutrino reactor experiment in China and in its larger scale follow up JUNO project. Daya-bay has discovered a non-zero θ_{13} angle, while JUNO is expected to make a sensitive measurement of the neutrino mass hierarchy in addition to a thorough study of the θ_{12} sector of the PMNS matrix.

Both Daya-Bay and JUNO are unique experiments and played/will play a key role in the international scenario, by representing, in their respective fields an absolute scientific reference.

2) Contribution of the JINR group

The JINR group contributed to the main data analysis activities in Daya-Bay with original inputs, mainly in relation to fitting procedures.

For the future JUNO project, the tasks of the group include the realization of testing facilities for the PMTs, R&D work on the tracking detector and of the HV units.

This is backed by a series of studies on data characterization in view of the future data taking.

The role of JINR scientists at the managerial level in Daya-Bay is limited to that of Naumov. For JUNO, in addition to general institutional duties, we notice several L2 and L3 manager responsibilities for the realization of hardware components

3) Plans

The JINR group intends to exploit the investment for Daya-Bay and pursue running data analysis work. They want mainly to invest work on the potential use of their original GNA software framework and continue their original studies on the IBD.

The work on JUNO will naturally concentrate on the realization of the experiment and on the hardware activities. Emphasis will be given on the above-mentioned activities (PMTs, HV and tracker) with a series of milestones to be met within the large international collaboration.

4) Publications

According to the proponents, 6 out of 12 recent Daya-Bay publications had relevant contributions from JINR researchers, in addition to general development papers on the GNA framework.

There are not yet JUNO papers.

5) PhD theses

One thesis completed in 2017.

6) Talks

The proponents present long lists. However, the number of eligible talks (for both experiments) is lower; given the consistency of the group and the quality of the researchers one should definitely aim at a higher international visibility.

Plenary at international conferences: 5; parallel talks: 9.

There are several other scientific contributions which show how active are the researchers involved in the two projects.

7) Group size, composition and budget

Altogether, 29 heads are involved in Day-Bay/JUNO with a reasonable number of 15.6 FTEs. Most of them are involved in the preparation of JUNO, which is reasonable. However, one should not neglect the potential scientific output of Daya-Bay, mostly in relation of the possibility of high-quality student theses.

The group is well funded as far as the construction contribution to JUNO is concerned. Pending a stronger future involvement of other members of the group presently with a small involvement in the JUNO project, one could even think of an increased support from JINR.

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