1Goal of the experiment

The Borexino experiment is a very successful experiment in the domain of low energy solar neutrino. It demonstrated the MSW effect in neutrino iscillation. It reaches unprecedent level of radiopurity allowing to extend the range of sensitivity to solar neutrino to very low enegy and in particular to reach the p-p neutrinos.

The main objective is now to measure the CNO neutrino to help to solve the metallicity problem. More statistics will also improve the accuracy on p-p measurement.

It is clear that the detector has now reached most of the possible results and for the metallicity problem surely some detectors like SNO+ will reach a better precision but it is important to extract the maximum of physics data with the detector.

2, Contributions of the JINR Group

The contributions of JINR group are very important and visible. They concern the hardware as well as the software. There are several contribution to key results papers.

There is participation to IB, steering committee and lead of one working group by the same physicist.

3 Plan

The plan is mainly to participate to the analysis to improve accuracy on p-p solar neutrinos and geoneutrinos and to measure CNO cycle. There are competitors in the future for CNO and pep neutrino like SNO+. What is the strategy for the data taking on long term for Borexino. ?

4 Publications

There 6 publications in the last 2 years with strong contribution in 2 of them and internal rewiever for one of them. They are published in high rank paper.

5 PhD thesis

6 Talks

8 plenary conference by the same speaker and parallel sessions with only two speakers in the group.

7 Group size, composition and budget

4 physicist and engineers involved in the projet for the future 3.1 FTE. PhD students will be surely helpful to reach the objective of the group.

Budget is reasonable taking iinto account the size of the group and the analysis activities. Are the Borexino fees included in the budget ?

Is it really useful to consider using computing resources at JINR at this phase of the experiment. What will be the added value for the group and the collaboration?

Comment

Borexino is a world-leading experiment in low energy neutrino with results having high impact in neutrino physics. The hardware and software contributions of JINR are very important with a strong involvement in the analysis. The JINR team has a strong expertise in low energy neutrino physics and associated background. There are publications in high rank journal with visible contributions and several conference participations.

The group should ensure to have enough manpower to reach the objectives. Students would be needed. On the other hand, it would be beneficial also to have more people presenting results in the conferences.