

Referee report to the joint NP+PP PAC at Dubna, 22. January 2019

Theme 1099 “Study of Neutrino Oscillations”

NOvA Experiment

The NOvA experiment is on the world wide scale one of the most important long-baseline neutrino oscillation experiments. A neutrino beam is produced by the proton accelerator at Fermi Lab and monitored by a 290 ton “NEAR” detector and 810 km away by a 14 kton “FAR” detector. The primary goal is to determine the ν_μ disappearance and ν_e appearance in the FAR detector, but also to study neutrino interactions in every respect. The spectrum of crucial observations is quite broad, the main goals being to fix the neutrino mass hierarchy, to check for CP violation in the neutrino sector, to search for the existence of sterile neutrinos, etc. Other important tasks are watching for supernova neutrinos and the study of non-neutrino processes, e.g. a search for magnetic monopoles. NOvA has been running since 2014 and produced outstanding results in this field.

Considering that the JINR group (24 people, FTE = 14) represents ~10% of the whole NoVA collaboration, it has a strong standing with ~8 people in leading managerial positions. This is mainly due to the remote operation center (ROC Dubna) which allows full participation at home on running, monitoring, on and off line analysis by using the local computer center. The plan is to continue on this basis and even extend the participation.

The listed publications, PhD theses and the numerous talks demonstrate the important role of the Dubna physicists in NoVA.

The financial contributions from Dubna and the workshop contributions are moderate and seem to be well in balance.

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