

Referee report on the Project COMPASS-II (JINR participation)

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The report given to the Program Advisory Committee of JINR on 16th January 2017 outlines the present status of the activities being carried out by the JINR researchers in the framework of the CERN COMPASS-II experiment and deals with the plans in view of the future detector operation and data analysis. It describes the work to be carried out in the years 2017-2019.

The COMPASS-II experiment at CERN aims at the study of the nucleon structure and hadron spectroscopy by the use of high intensity muon and hadron beams. The experiment has a long life. Recently, in 2015, the first polarized Drell-Yan measurement with a beam of negative pions and a polarized proton target were performed. The experimental apparatus was upgraded for the runs in 2016 and 2017 with a liquid hydrogen target placed in the muon beam.

The JINR group has been very active in the collaboration, in particular, conducting studies on spin asymmetry by the use of polarized muons (data taken in 2011). The group is also very active with the other colleagues of COMPASS towards the definition of the long-term COMPAS-III program, being discussed at CERN. For the more near future (2017-2019) the collaboration will take data with muons (2017 and, maybe, 2018) and pions (likely in 2018).

As far as the project plan of the JINR group for 2017-2019, there is the participation in the shifts and in the maintenance of some detectors of JINR responsibility, *e.g.* the hadronic calorimeter and the new electromagnetic calorimeter.

The financial request mainly includes resources for trips to CERN and for Common Fund. It would be desirable having information on how the CF is shared among the various groups and more justifications on its use. The amount of money is not negligible and one can argue if the choice of sending people to CERN for so many shifts is really economical or if it could partly be replaced by remote shifts, an approach more and more popular in HEP experiments.

Two JINR laboratories are involved in the experiment LHEP and LNP. Both groups are involved in this project, while a group of LNP is also proposing a new project to the JINR PAC, focused on the specific study of hadron physics.

The referee considers that the splitting in two projects for the next three years is arbitrary and artificial. A single JINR group can be much more effective within the international collaboration, still keeping different research directions and objectives, allowing an optimal use of JINR resources and avoiding duplications. This argument is also put forward by the referee in the report of the second project.

Under these circumstances, the referee considers that the project must be continued for the period 2017-2019 and supported with first priority, only if the COMPASS JINR activities will be centralized into a single, common proposal.



Prof. Dr. Antonio Ereditato

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