Referee's report on the prolongation of the COMPASS-II project for 2021-2022 years

JINR's participation in the COMPASS and COMPASS-II experiments since 1998 has been very fruitful and successful. These experiments were one of the main ones at CERN for JINR before the projects at the LHC has been started. And even at the stage of completion, COMPASS-II with its ambitious scientific program still retains its significance for JINR.

The physical program of the COMPASS-II experiment is very broad, it includes 4 main parts. Experimental work on this program has been started in 2012 with measurements of Primakoff reactions and a pilot data taking for the study of Deep inelastic Virtual Compton Scattering (DVCS) on nuclei and the study of exclusive meson production (HEMP). Next, data takings were performed to study spin-dependent Drell-Yan processes. The COMPASS-II research program also has a very important point - the study of semi-inclusive processes of lepton scattering on polarized and non-polarized nuclear targets. In all points of this program, JINR physicists have made a significant contribution to obtaining physical results.

In addition to the above-mentioned physical activities, the JINR group performs a number of important works on the set-up (according to MoU). The group has been produced and currently one maintains three detectors: the hadron calorimeter (HCAL1), the muon coordinate system (MW1), and the new electromagnetic calorimeter (ECAL0). This list should also include work on the polarized target, the experimental hall, and the data acquisition system (DAQ).

The extension of the JINR group's work for 2021-2022 is the final stage of work on the COMPASS-II experimental measurement program. In 2021, COMPASS-II plans to measure semi-inclusive reactions on a transverse polarized deuterium target. It is important for the JINR group to ensure the successful completion of these measurements, and to continue processing and obtaining physical results using the already collected and in future obtained (2021) data of the COMPASS-II set-up.

The continuation of the work of a group of JINR physicists and engineers in the COMPASS-II experiment is very important for our institute. the JINR team has a very good reputation and extensive experience in this field, and the successful completion of the experimental work on the project will only raise the prestige and scientific level of JINR.

Nevertheless, I would like to note the presented project describes the obtained results in rather detail and is very briefly in designating plans for 2021-2022. The project lacks a swot analysis, which is needed according to the current version of the rules.

Summarizing, and taking into account expected significant scientific results, my recommendation is to approve JINR's continued participation in the COMPASS-II experiment for the next 2 years until the end of 2022.

Deputy Director of the DLNP JINR
Doctor of Science in physics and mathematics  V.V. Glagolev

February 13, 2020