**Referee report**

**On the project “Physics Studies with the CMS experiment and the second phase**

**of detector upgrade for operation in high luminosity conditions (2026-2030)”**

 **The JINR team is participating in CMS experiment from the start of this project in 90’s. JINR significantly contributed in the design, construction, commissioning, operation and upgrade of the Endcap Hadron Calorimeter and Forward Muon Station M1/1.**

 **JINR physicists also take an active part in data analysis (Higgs boson study, precision test of SM, search of new physics and etc.).**

 **About 80 people from JINR involved in CMS experiment and it is strong team participating in hardware, software and data analysis.**

 **The LHC luminosity will be increase up to 7.5x10\*\*34 after LS3 in 2030. CMS detector will require significant upgrade in order to meet HL-LHC. CMS phase-2 upgrade will start in 2026 and continue till 2030. The HGCAL will replace existing CMS endcap calorimeter. JINR group plans to contribute to the development and construction of test facility for testing of HGCAL cassette and assembling of the cassettes.**

 **JINR team also will upgrade Forward Muon detector (Station M1/1). The R&D will continue to study the detector performance under high background conditions.**

 **During 2026-30 JINR group also plans to contribute in software (event reconstruction, distributed data processing on grid technologies) and date analysis.**

 **JINR's participation in the SMS experiment is a significant contribution of JINR to particle physics and further participation of the JINR group in this experiment in 2026-30 will undoubtedly benefit JINR and the SMS experiment.**

 **I recommend to accept the project “Physics Studies with the CMS experiment and the second phase of detector upgrade for operation in high luminosity conditions (2026-2030)” for the period 2026-30 with highest priority.**

 **Yuriy Tikhonov**

 **Budker INP**