



# ЛАБОРАТОРИЯ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ

## Семинар научного отдела вычислительной физики

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Room 310

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### Registering Rare Decays $J/\psi \rightarrow \mu^+ \mu^-$ in the CBM Experiment

At present, the CBM experiment (Compressed Baryonic Matter) is being prepared by a large international collaboration together with JINR at the FAIR (Facility for Antiproton and Ion Research) accelerator complex under construction at GSI (Darmstadt, Germany). CBM is aimed to operate in extremely high frequencies of reactions up to 10 MHz. Such an unprecedented speed should enable to carry out unique systematic measurements of multi-differential observables, as well as the registration of rare and exotic states. The key task of the T-DAQ (Trigger Data Acquisition) system of the CBM experiment in real time is the registration and accumulation of information related to the so-called "signal events". "Signal events" are those rare observables whose registration and analysis the real experiment is aimed at. Due to the complexity and ambiguity of selection criteria for "signal events", it was decided within the CBM collaboration not to develop a generally accepted trigger system that would be unified for all physical processes under study. Instead, it is planned to include "trigger" elements in the T-DAQ system of each detector and record the time of response of the detection equipment. The flows of registered experimental information will be controlled by a high-performance network integrated into a unified computing environment. The given environment is designed to filter information and select "signal events". In the present paper, a trigger system for registering rare decays  $J/\psi \rightarrow \mu^+ \mu^-$ , which uses only the information registered by coordinate detectors of the MUCH muon station, is discussed.