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The Joint Triggering and DAQ System of Experimental Complex NEVOD for Multicomponent Cosmic Ray Investigations

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The Unique Scientific Facility NEVOD represents a large experimental complex including a number of setups for investigations of various components of cosmic rays in a wide range of energies and zenith angles. The main setup of the complex is the Cherenkov water detector (CWD) of 2000 m³ volume filled with a dense lattice of 91 quasi-spherical measuring modules. CWD can perform like a 4π hodoscope or calorimeter. Its joint operation with streamer tube coordinate-tracking detector DECOR (70 m²) allowed to be the first to measure the dependence of muon bundle energy deposit on the energy of primary cosmic rays that was an important step in understanding of “the muon puzzle”.

The complex also includes an array of neutron detectors PRISMA, Calibration Telescope System, a new setup for study of extensive air showers NEVOD-EAS of 1000 m² area, an URAN setup for investigations of hadron component of EAS, and new drift chamber installations for dense muon bundles studies. All of them are combined by a joint triggering system that unites their data and allows to match all events detected by separate sub-systems. The talk presents the design and main principles of joint operation of the Experimental Complex NEVOD and its future detectors.

Primary author: Mr ZADEBA, Egor (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute))

Presenter: Mr ZADEBA, Egor (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute))

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