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Multicomponent studies of extensive air showers detected by the installations of the Experimental complex NEVOD

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The complementary approach to the investigations of extensive air showers (EAS) is very promising for conducting their multicomponent studies. In this approach, information about one or more EAS components, which is insignificant from the point of view of independent analysis, can be added to data on other components providing more accurate determination of the parameters of the extensive air shower and the primary particle. Such studies and an approach have been implemented at the Experimental complex NEVOD (MEPhI, Moscow), which includes installations capable of detecting electron-photon, hadronic and muon components of extensive air showers by various methods. All installations of the Experimental complex NEVOD are combined by a global time synchronization system, which allows linking of events detected by each installation to the global time with an accuracy of 10 ns. For the joint analysis of information from all installations of the complex, a unified database of experimental data is being developed. In this report, we present examples of events detected by the installations and detectors of the complex, discuss EAS characteristics and the results of joint analysis of experimental and simulated data on various air-shower components.

Primary author(s) : KHOKHLOV, Semyon (National Research Nuclear University MEPhI)

Co-author(s) : AMELCHAKOV, Mikhail (MEPhI); BOGDANOV, Alexey (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)); DMITRIEVA, Anna (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)); GROMUSHKIN, Dmitry (MEPhI); KOKOULIN, Rostislav (National Research Nuclear University MEPhI); SHULZHENKO, Ivan (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)); ЮЖАКОВА, Елена; НУГАЕВА, Корнелия; ПЕТРУКХИН, Anatoly (National Research Nuclear University MEPhI); Ms. KONOVALOVA, Alena (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)); Mr. POCHESTNEV, Andrey (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute))

Presenter(s) : KHOKHLOV, Semyon (National Research Nuclear University MEPhI)

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