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Energy and Timing Resolution of the Russian-Made Topaz-M MCP-PMT for Particle Physics Applications

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The energy and timing resolution of the Russian-made Topaz-M microchannel-plate photomultiplier tube (MCP-PMT), developed and manufactured by Baspik, were experimentally studied. The coincidence time resolution of the Topaz-M MCP-PMT was measured for the first time, while its energy resolution was studied with $\text{LaBr}_3:\text{Ce}$ and GAGG scintillators using gamma-ray sources in the 511-1275 keV energy range and compared with conventional photomultiplier tubes, assessing its potential for fast-timing and gamma-ray spectrometry applications in particle physics experiments.

Primary author(s) : BOYKO, Nadezhda (National Research Center "Kurchatov Institute", National Research Nuclear University MEPhI)

Co-author(s) : Mr. POPOV, Daniel (National Research Center "Kurchatov Institute", National Research Nuclear University MEPhI); Mr. DUBININ, Filipp (Lebedev Physical Institute of the Russian Academy of Sciences, National Research Center "Kurchatov Institute", National Research Nuclear University MEPhI); Prof. SKOROKHVATOV, Mikhail (National Research Center "Kurchatov Institute", National Research Nuclear University MEPhI); Mrs. DEMBITSKAIA, Anna (National Research Nuclear University MEPhI)

Presenter(s) : Mr. DUBININ, Filipp (Lebedev Physical Institute of the Russian Academy of Sciences, National Research Center "Kurchatov Institute", National Research Nuclear University MEPhI)

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