N. D. Khanbekov[1], V. V. Alenkov[2], A. A. Burenkov[1], O. A. Buzanov[2], V. N. Kornoukhov[1]

[1] Institute for Theoretical and Experimental Physics, Moscow, Russia
[2] JSC Fomos-Materials, Moscow, Russia

DATA ANALYSIS OF THE INTERNAL BACKGROUND MEASUREMENTS OF $^{40}Ca^{100}MoO_4$ SCINTILLATION CRYSTALS

The sensitivity of neutrinoless double beta ($0\nu2\beta$) decay experiments is mainly dependent on the internal background of a detector which, in its turn, is defined by the purity of material and possibility for selection of background events. The AMoRE (Advanced Mo based Rare process Experiment) collaboration plans to use $^{40}Ca^{100}MoO_4$ scintillation crystals as a detector for search of $0\nu2\beta$ decay of ^{100}Mo isotope. A purpose of this paper is further investigation of internal background of $^{40}Ca^{100}MoO_4$ scintillation elements with a low background setup at YangYang underground laboratory. We present new approaches for selection of background events from analyzing data and the latest updated values of background index of $^{40}Ca^{100}MoO_4$ crystals as a result of the new technique application.

Keywords: neutrinoless double beta decay, data analysis, scintillators, calcium molybdate, low-background physics, time-amplitude analysis, radioactive background.