MEDEX'19



Contribution ID: 81

Type: Oral Presentation

Precise measurement of two-neutrino double-beta decay of 100Mo with lithium molybdate low temperature detectors

Friday, May 31, 2019 10:00 AM (30 minutes)

The two-neutrino double-beta decay of 100Mo was investigated with the help of enriched in 100Mo lithium molybdate scintillating bolometers. The measurements were performed in the EDELWEISS-III low background set-up in the Modane underground laboratory with a total exposure of 42.235 kg x d. Preliminary, the half-life of 100Mo with respect to the two-neutrino double-beta decay to the ground state of 100Ru is measured to be T1/2 = (6.99 \pm 0.17) 10^18 yr. This is the most accurate determination of the 100Mo half-life to date. Moreover, the half-life value (the relative uncertainty ~ 2.4 %) is the most accurate among the most precise double beta decay measurements. An effective nuclear matrix element for the two-neutrino double-beta decay of 100Mo to the ground state of 100Ru, assuming the single-state dominance mechanism of the decay, is calculated as 0.1860 \pm 0.0023.

Presenter: Prof. DANEVYCH, Fedir (Institute for Nuclear Research, Kyiv, Ukraine) **Session Classification:** Session (Chair: J.Suhonen)