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Directional sensitivity investigation of two coordinate neutron detector based on ^{10}B layer and wire chamber

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The directional sensitivity of two coordinate neutron detector based on 3-μ m ^{10}B layer and a wire chamber was studied [1]. In the experiment, the detection of scattered neutrons by the detector was found to be suppressed in comparison with the data from the helium-3 tube counter in the experimental area.
A simulation shows that this phenomena can be explained by two factors acting simultaneously: a neutron flux strong absorption in the ^{10}B layer which falling at a large angle to the detector plane and the fact that secondary nucleus energy of ^{4}He or ^{7}Li is not enough to exceed the energy threshold if nucleus outgoes from the depth of the ^{10}B layer.

1. I.V.Meshkov, S.I.Potashev, A.A.Afonin, Yu.M.Burmistrov, A.I.Drachev, S.V.Zuyev, S.Kh.Karaevsky, A.A.Kasparov, E.S.Konobeevski, S.P.Kuznetsov, V.N.Marin, V.N.Ponomarev, G.V.Solodukhov. Studying the Spatial Distribution of a Neutron Flux Using Detectors Based on Helium-3 and Boron-10. Bulletin of the Russian Academy of Sciences: Physics, 2020, V. 84 (4), P.382-384.

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