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Low neutron flux detectors for underground laboratories

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Ambient neutrons are one of the sources of background events for experiments studying neutrinos and searching for dark matter. This is due to the penetrating ability of neutrons, and the fact that when neutrons enter the detector, they can cause signals indistinguishable from the searched ones. Preliminary measurements of neutron fluxes at experimental sites make it possible to select the optimal shield configuration for protecting the detectors and make assumptions about the contribution of the neutron background to the expected result. Thus monitoring changes in neutron flux during basic measurements is the basis for correct interpretation of experimental results. The report will describe detectors and methods for measuring extremely low neutron fluxes at the level of 10^{-9} neutrons per cm^2/s , used and developed at DLNP JINR.

Author: ZINATULINA, Daniya (Joint Institute for Nuclear Research)

Presenter: ZINATULINA, Daniya (Joint Institute for Nuclear Research)

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