

Cosmogenic Neutron Production at Daya Bay

Authorship annotation

On behalf of the Daya Bay collaboration

Session and Location

Monday Session, Poster Wall #165 (Ballroom)

Abstract content

Spallation neutron from cosmic-ray muon is an important background for underground experiments, such as neutrino oscillation study, dark matter search, and neutrinoless double beta decay search. The neutron yield measurement results at Daya Bay were $(10.26 \pm 0.86) \times 10^{-5}$, $(10.22 \pm 0.87) \times 10^{-5}$, and $(17.03 \pm 1.22) \times 10^{-5} \mu^{-1} g^{-1} cm^2$ at different depths 250, 265, and 860 meters-water-equivalent of the three experimental halls, respectively. The yield results were compared with other experiments and we got a power law coefficient of 0.77 ± 0.03 for the dependence of the neutron yield on muon energy. We also compared the yield results with simulation by Geant4 and Fluka.

Poster included in proceedings:

yes

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