

LNGS SEMINAR SERIES

Vitaly Kudryavtsev

University of Sheffield

Muon-induced background and its impact on rare-event searches, in particular the DAMA/LIBRA data

Muon-induced events, in particular neutrons, have been considered as a dangerous source of background for high-sensitivity experiments aimed at detecting dark matter WIMPs, neutrinoless double-beta decay, reactor and astrophysical neutrinos, and proton decay. With an improvement in models for muon interactions, neutron production and transport, we can now predict the neutron fluxes and event rates in detectors to within sufficient precision so our predictions match data quite well.

I will show the progress in this work and an impact of neutron background on rare-event search experiments, in particular on the DAMA/LIBRA data. There were several publications suggesting that the DAMA modulated signal can be explained by muon-induced effects and I will discuss whether their signal can indeed be explained by the muon flux modulation.

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