



Contribution ID : 91

Type : Poster

The influence of reactor neutrino energy spectra for constraints on amplitude of coherent elastic neutrino-nucleus scattering

Tuesday, 22 October 2024 17:05 (115)

This report shows how the current models of reactor antineutrino energy spectra affect the estimates of the count rate for coherent elastic neutrino-nucleus scattering (CE ν NS) in the RED-100 experiment. The reactor antineutrino spectrum consists of contribution from 4 main (parent) isotopes ^{235}U , ^{238}U , ^{239}Pu , ^{241}Pu , taken with partial coefficients on the burn-up moment. We analyze and compare the spectra-averaged differential cross-section for each model and compared the resulting CE ν NS count rate in RED-100 at a distance of ~ 19 meters from reactor core at the Kalinin nuclear power plant (KNPP). The calculations performed show the difference between count rate estimations for each model and the corresponding constraints on CE ν NS cross-section amplitude. It is shown that the reactor high energy antineutrinos make a significant contribution to the prediction value.

Primary author(s) : LUKYASHIN, Anton (MEPhI/RTU)

Presenter(s) : LUKYASHIN, Anton (MEPhI/RTU)

Session Classification : Poster session

Track Classification : Neutrino physics