



Contribution ID : 31

Type : Oral talk

New nuclear reactor fissile isotopes antineutrino spectra

Thursday, 1 December 2022 11:45 (15)

New antineutrino spectra of fissile isotopes constituting the fuel of a nuclear reactor have been obtained. A combined technique was used: calculation of the antineutrino spectra and their fitting to those obtained in the experiment at the Rovno NPP in the 1980s. The cross sections of fissile isotopes calculated with these spectra perfectly describe the experimentally obtained cross section in the Double Chooz experiment $^{DC}\sigma_f = (5.71 \pm 0.06) \cdot 10^{-43} \text{ cm}^2/\text{fission}$. The cross section obtained from the calculated spectra for the same composition of nuclear reactor core $^{INR}\sigma_f = (5.82 \pm 0.12) \cdot 10^{-43} \text{ cm}^2/\text{fission}$. For the obtained spectra, there is no problem of spectrum bump in the region of 5 MeV in the observed energy of the positron spectrum.

Primary author(s) : SINEV, Valery (INR RAS); Dr. NAUMOV, Peter (National research nuclear university MEPhI); Mr. VLASENKO, Artemy (National research nuclear University MEPhI); Mrs. SILAEVA, Svetlana (Institute for nuclear research RAS)

Presenter(s) : SINEV, Valery (INR RAS)

Session Classification : Neutrino Physics

Track Classification : Neutrino physics