Contribution ID: **150** Type: **Poster report**

THE 100Mo(γ,n)99Mo REACTION CROSS-SECTIONS AT Eγmax = 30-100 MeV

Tuesday, 13 October 2020 19:15 (20 minutes)

The flux-weighted average cross-sections <σ(E)> of the photonuclear reaction 100Mo(γ,n)99Mo were determined for the end-point bremsstrahlung energies Eγmax = 30-100 MeV using the γ-activation method. Targets from natural molybdenum were irradiated by the bremsstrahlung beam with a step dEe = 4 MeV using the linear electron accelerator LUE-40 RDC "Accelerator"NSC KIPT. To determine the values of <σ(E)>, we used γ-lines with energies Eγ = 739.5 and 140.5 keV. The cross-section values obtained for these γ-lines coincide within the experimental er-rors. The found values <σ(E)> gradually decrease from 36 mb to 28 mb with increasing energy from 36 to 91 MeV.

The theoretical values <σ(E)> were obtained as a convolution of the cross-section σ(E) reaction, calculated using computer code TALYS1.9, and the bremsstrahlung spectra of electrons from GEANT4, calculated using of real energy profiles of electron beam. The comparison of theoretical average cross sections with experimental ones showed a difference of 8-18%, which is mainly determined by the deviation of the real flux of bremsstrahlung quanta from the calculated one. The obtained cross-sections <σ(E)> for the 100Mo(γ,n)99Mo reaction at Eγmax = 30-100 MeV were used as the monitor for measuring of the cross sections for the photonuclear reactions on other nuclei.

Authors: Dr VODIN, A.N.; Dr DEIEV, O.S.; Dr TIMCHENKO, I.S.; Dr OLEJNIK, S.N.; Dr A.S. KACHAN, Kachan (A.S.); Dr KORDA, L.P.; Dr KUPLENNIKOV, E.L.; Dr KUSHNIR, V.A.; Dr MITROCHENKO, V.V.; Dr PEREZHOGIN, S.A.; Dr PILIPENKO, N.N.

Presenters: Dr VODIN, A.N.; Dr DEIEV, O.S.

Session Classification: Poster session 2 (part 1)

Track Classification: Section 2. Experimental and theoretical studies of nuclear reactions.