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INVESTIGATION OF TOTAL NEUTRON CROSS SECTION CHARACTERS IN RESOLVED RESONANCE REGION. The fast neutron transmission measurements of thick layers of various materials (Fe, Al, Al₂O₃, N, Pb) are carried out on linac LU-50 using accelerator uranium target as neutron source. Section fission chamber with 10 g ²³⁵U was detector. Flight path equal 52,182±0,045 m, total resolution time is 18 ns. Neutron energy range is 0,15-15 MeV, CAMAC electronics was used in measurements. Total neutron cross section density is representation by means of Gram-Charlier series.

MEASUREMENTS OF HIGH RADIOACTIVE ISOTOPE FISSION CROSS SECTION USING NUCLEAR EXPLOSIONS AS PULSED NEUTRON SOURCE. Fission cross sections

of curium isotopes (A=243-248) were measured using sufficiently separated group neutrons with average energy 14.1 MeV which born by nuclear explosion. Also for ²⁴³Cm measurement was made in energy range 0.08-3.5 MeV using fast nuclear reactor as neutron source.

THE MEASUREMENTS OF ENERGY DEPENDENCE OF AVERAGE FISSION PROMPT NEUTRON NUMBER FOR ²³⁵U, ²⁴¹Am AND ²⁴⁵Cm AT NEUTRON ENERGY 0,5-10 MeV.

The measurements were made on linac VNIIEF by TQF-method. Flight path is 28.5 m. The fission events were recorded by plane-parallel avalanche fission-fragment detector. The fission neutrons were recorded by big liquid scintillation detector with Gd. The U data are coinciding with evaluation data from papers of Manero and Konshin in experimental limits. The ²⁴¹Am and ²⁴³Am data were described by means of dependences $\nu_p = 3,05 + 0,139 E_n$ and $\nu_p = 3,20 - K, 154 E_n$ accordingly. For ²⁴⁵Cm this dependence is $\nu_p = 3.52 + 0.146 E_n$ in energy range 0.7-10 MeV. This result for ²⁴⁵Cm is distinguished from one in paper R.E.Howe et al. NP, A407, 1983, p.193-207.

YIELD AND ENERGY DISTRIBUTION OF PHOTONEUTRON FROM LIGHT, MIDDLE AND HEAVY NUCLEI. The photo-neutron spectra and yields were measured by means of TOF method on Linac LU-50 from samples of C, B, Al, Fe, B₄C, Ni, Cu, Ta, Pb, ²³⁸U at energy

0.8-30 MeV. The neutrons recorded by scintillation detector at 90 degree relative beam bremsstrahlung, The path "detector-sample" was 55 m.

THE TOTAL FAST NEUTRON CROSS SECTIONS AT INTERACTION WITH Be, B AND

Pb. The measurements were carried out in energy range 0.5-16 MeV for isotopes ⁹Be, ^{10,11}B, ^{206,207,208}Pb, Bnat, Pbnat on Linac LU_50 by means of TOF-method. The paths "neutron source-sample-detector" were 25 and 50m. The time resolution was equal 0,35 ns/m. The data errors are 1.5-3 %.

GAMMA-RAY PRODUCTION CROSS SECTION AT INELASTIC NEUTRON INTERACTION WITH Si. Measurement method was carried out in linac LU-50 of total and differential cross sections of γ -rays production with energy 0.5-10 MeV at 125 degree. The TOF-method was used for energy selection of neutron. The Ge-Li detector and total absorption detector with NaJ (Tl) recorded γ -rays. The neutron energy equal 1,2-20 MeV.

THE NEUTRON DIFFERENTIAL SPECTRUM TOF MEASUREMENTS ON LITHIUM NUCLEI AT 14.5 MeV OF INCIDENT NEUTRON ENERGY. The measurements were made in order to check new experimental electronic devices of 4π -spectrometer with time resolution 3 – 4 ns; The spectrometer had 168 counters with energy threshold $\leq 0,5$ MeV. The lithium samples with enrichment by ${}^6\text{Li}$ 90, 6 p.c. was placed in center of spectrometer on distance from neutron generator tritium target 20 mm.

THE TIME DISTRIBUTION CALCULATIONS OF NEUTRONS WHICH SCATTERED BY SPHERICAL LAYER OF TOF 4π ; NEUTRON SPECTROMETER. The calculations were made for explanation of experimental neutron and gamma-ray background.

THE MEASUREMENTS OF INTERACTION CROSS SECTIONS OF ACCELERATED HYDROGEN ISOTOPES WITH LIGHT NUCLEI. Investigation of interaction cross section of protons, deuterons and tritons with light nuclei was made on tandem accelerator ЭП-10 in energy range 3-12 MeV. The total neutron production cross-section was measured in reactions ${}^9\text{Be}+1,2,3\text{H}$. The total tritium production cross section in reactions ${}^7\text{Li}+p$, ${}^6,7\text{Li}+d$ and ${}^9\text{Be}+d$ by activation method was measured. The differential cross sections of two-particle reactions with charge particle production at energy step 0.5 MeV and scattering angle step 10 degree were measured. The total cross section of reaction ${}^7\text{Li}(t,p){}^9\text{Li}$.

INTERACTION CROSS SECTION OF HYDROGEN AND HELIUM NUCLEI WITH LIGHT NUCLEUS $Z \leq 5$. Evaluation data library was produced on basis of experimental and compilation cross sections. This library consisted more broader number of reactions as compared with Livermore library ECPL-86 and Austria library Datlib.

THEORETICAL INVESTIGATION OF ${}^{10}\text{Be}$ THRESHOLD LEVELS AT EXCITATION ENERGY VALUES 17-23 MeV. The experimental excitation functions of reactions ${}^7\text{Li}(t,\alpha){}^6\text{He}$, ${}^7\text{Li}(t,\alpha){}^6\text{He}^*$, ${}^7\text{Li}(t,n)$ were analyzed with help resonance threshold theory in energy triton range 80-500 keV.

CALCULATION OF MAIN THERMONUCLEAR REACTIONS. The cross-section of reaction ${}^3\text{H}(d,n){}^4\text{He}$, ${}^2\text{H}(d,n){}^3\text{He}$, ${}^2\text{H}(d,p){}^3\text{H}$, ${}^3\text{H}(t,2n){}^4\text{He}$, ${}^3\text{He}(d,p){}^4\text{He}$, ${}^3\text{He}({}^3\text{He},2p){}^4\text{He}$ were made with account of modern experimental results.

INVESTIGATION OF THE NEUTRON INELASTIC SCATTERING ON THE ZIRCONIUM ISOTOPES WITH EXCITATION OF INDIVIDUAL LEVEL. At last time the attention of researchers was often attracted to irregularities of the excitation functions of the (n, n') reactions, that can't be described by the statistical methods in the theory. We supposed that there is a connection of these irregularities with the filling in the neutron shells.

We are doing to carry out the measurements of neutron inelastic scattering for ^{91}Zr , ^{92}Zr , ^{94}Zr

by excitation of the individual energy levels with un-uniformity of the initial neutron beam 10-15 keV. We shall use the reaction T(p,n) as the source of neutrons from the thin titanium-tritium target. The time correlated associated gamma-radiation method will be used. Neutron flow will be measured by the registration of fission fragments with the miniature chamber with well-known quantity of ^{235}U .

MEASUREMENT OF NEUTRON INDUCED FISSION CROSS SECTION RATIOS FROM

0,7 TO 45 MeV. We realized the technique of shape measurements at the neutron time-of-flight

spectrometer GNEIS of Sankt-Peterburg's Nuclear Physics Institute. The neutron source is a inner cyclotron target bombarded by the 1 GeV proton bunches, 'falling' during 10 ns with the repetition rate of 50 sec^{-1} . The fission fragments are detected by means of methane multi-plate ionization chamber. We already carried out the measurements of ^{232}Th and ^{238}U relative to ^{235}U for neutron energies between 1 and 45 MeV and planning to do this for ^{237}Np and ^{239}Pu .

We are discussing also possible prolongation of measurements in high energy range and problems of fission cross-section measurements relative to neutron-hydrogen elastic cross section.

MEASUREMENTS AND EVALUATION OF DECAY DATA OF THE RADIONUCLIDES ^{145}Sm AND ^{153}Gd . Work had been undertaken at Khlopiya Radium Institute to measure specific

XK- and γ -ray emission probabilities of the radionuclides ^{145}Sm and ^{153}Gd . The measurements

have been accomplished using modern precise instruments. The absolute activity of ^{145}Sm and ^{153}Gd has been measured by $4\pi\beta(\text{c})-\gamma(\text{X})$ coincidence method. The intensities of γ -, XK-rays in ^{145}Sm and ^{153}Gd have been measured using the response functions for the three spectrometers - two Ge(Li) and one Si(Li).

^{145}Sm . Absolute intensity of the 61.25 keV γ -rays $I'_{61.25} = (12 \pm 0.27) \gamma/100 \text{ decays}$ ($P=0.95$) have been measured. In the detector efficiency calibration procedure the 59 keV γ -rays (^{241}Am) and 88 keV γ -rays (^{109}Cd) have been used. The summary intensity of XK-rays have been measured using $4\pi\gamma$ detector. The intensities of Sm characteristic XK-rays components: $I_{\text{Ka}2} = (38.1 \pm 0.8)$, $I_{\text{Ka}1} = (68.8 \pm 1.3)$, $I_{\text{K}\beta'1} = (21.3 \pm 0.5)$, $I_{\text{K}\beta'2} = (5.58 \pm 0.15)$ photons per 100 decays ($P=0.95$).

^{153}Gd . Absolute intensities of the 69.7, 97.4 and 103.2 keV γ -rays $I'_{69.7} = (2.44 \pm 0.13)$, $I'_{97.4} = (29.0 \pm 1.5)$; $I'_{103.2} = (21.3 \pm 1.0) \gamma/100 \text{ decays}$ ($P=0.95$) have been measured. In the efficiency calibration procedure for the Ge(Li)-, Si(Li)-detectors the γ -rays from the decays of ^{57}Co , ^{109}Cd , ^{133}Ba , ^{241}Am has been used. The intensities of Gd characteristic XK-ray components $I_{\text{Ka}2} = (33.1 \pm 1.3)$, $I_{\text{Ka}1} = (59.3 \pm 2.3)$, $I_{\text{K}\beta'1} = (18.9 \pm 0.8)$, $I_{\text{K}\beta'2} = (5.08 \pm 0.21)$

photons per 100 decays ($P=0.95$) have been measured.

Evaluation. The great difference has been obtained as regards recommended reference data for ^{153}Gd . Further evaluation of ^{145}Sm , ^{153}Gd decay data is in progress.

PHOTOFISSION CROSS SECTION MEASUREMENT SYSTEM FOR EXPERIMENTS WITH SPONTANEOUSLY FISSIONING NUCLEI IN THE INTENSE PULSED BREMSSTRAHLUNG FLUXES. A thin film breakdown counter system constructed for detection of fission fragments during the linac's bremsstrahlung γ -pulses. The detector units were disposed in the angular region 0° - 90° relative to beam axis. One of TFBC registered the fission fragments, the second one was used for compensation of counters response to the γ -pulse. The signals from detector units via the ADC, TDC and CAMAC interface were sent to the computer memory. The detector system was used for detection of fission fragments from $^{248}\text{Cm}(\gamma, f)$ -reaction induced by bremsstrahlung γ -quanta from linac. The test results indicate that the system can be used at a peak intensity of an electron beam current $I_e^{\text{imp}} \sim 0,5-1,5$ A. Future experiments on investigations of near-and sub-barrier γ -induced fission of 242 , 244 , 246 , ^{248}Cm and ^{252}Cf are presently being planned.

SPONTANEOUS FISSION NEUTRON SPECTRUM MEASUREMENT OF CURIUM-248. A Multi-dimensional time-of-flight neutron spectrometer was used for measurement of the ^{248}Cm spontaneous fission neutron spectrum. This spectrum was measured relative to ^{252}Cf . A special source of fissions was manufactured, representing a thin platinum disc on one side of which was Cf and on the other Cm layer. Both sources of fissions were covered with thin films (40mcg/cm^2). A stilbene crystal with a phototube FE.U-30 was used as the neutron detector. To decrease the number of background, neutrons and to improve the time resolution, a two-threshold system of neutron registration was used. The time resolution was about 0.6 ns. The measurements were carried out in the neutron energy range 0.1-10 MeV. Cf and Cm neutron spectra were measured simultaneously, using the same neutron and fragment electronic channels. The average energy of neutron spectrum obtained equals $E = 2.069 \pm 0.008$ MeV. Proceeding from it the average Maxwell temperature was determined ($T = 1.379 \pm 0.005$ MeV). In the neutron energy, range below 0.5 MeV a excess ($\sim 10\%$) of the spectrum intensity over the Maxwell distribution with $T = 1.38$ MeV is observed for ^{248}Cm .

EVALUATION OF THE Np-237 FISSION CROSS SECTION FOR 20 keV TO 20 MeV NEUTRONS. In the new evaluation process for the measurements where either the neutron flux was determined or the cross section was absolutized by the ratios on the basis of fission cross-section of U-235 or U-238, the data obtained were renormalized using the nowadays versions of the α_f (U-235 or U-248) evaluation. A correlation analysis of the experimental data was performed. To perform the evaluation the generalized least square method was used. Due to small correlations between different measurements a successive inclusion step by step of the data of different measurements was performed. In this case, the evaluation obtained in a previous step was a prior information for the next step. Two versions of the evaluation were obtained based on the ENDF/B-5 and ENDF/B-6 evaluations of the U-235 fission cross-section. A better consistency of relative and absolute data was found for the first version. Both versions are presented in the Fig. in comparison with the ENDF/B-4 evaluation of the α_f (Np-237).

^3H YIELD MEASUREMENTS IN FAST NEUTRON INDUCED FISSION. ^3H yield measurements in ^{233}U and ^{235}U fission induced by 14.5 MeV neutrons and in ^{240}Pu fission induced by 2.5 and 14,5 MeV neutrons have been carried out. The experimental setup was used which has been made earlier for light charged particle (LCP) yield studies [1] and was modernized for these measurements: a method of two gated integrators was employed for the CsI(Tl) detector current pulse shape analysis to increase a quality of LCP identification. The

^3H yields for ^{240}Pu are determined for the first time. The ^3H yields were determined using linear fits of ternary fission probabilities as functions of $^2Z/A$ and $(4Z-A)$ parameters from [2,3,4]. The sum total of our data on the ^3H yields in fission induced by 2.5 and 14.5 MeV neutrons is shown in fig.1 as a function of $^2Z/A$. The results of measurements show that in a fast neutron induced fission the ^3H yield does not increase with an increasing of the fissioning nucleus excitation energy up to 20 MeV at least up to $^2Z/A=36.4$.

PHOTOFISSION CROSS SECTIONS- MEASUREMENT FOR ^{248}Cm IN THE GDR REGION. Photo-fission cross sections measurements for ^{248}Cm were performed using bremsstrahlung photons produced in 1 mm thick tungsten target in the energy region 7-20 MeV. The energy step was about 0.5-1 MeV. The weight of curium target, electrolytically deposited in stainless steel backing was 1.41 mg (95.1% ^{148}Cm , 4.8% ^{246}Cm , $4.5 \cdot 10^{-2}\%$ ^{241}Am , $3,0 \cdot 10^{-5}$ ^{252}Cf). The 6 mm thick Mylar solid state track detectors were placed at an angle 0° - 90° relative to the beam axis. The all-automatic spark counter was used for tracks counting. The γ -fluence was determined using $^{237}\text{Np}(\gamma, f)$ -reaction. From the measured yields the photo-fission cross section were reduced. The fission cross-section values integrated over the measured energy range is 2.31 ± 0.19 MeV*b.

ISOTONIC SYSTEMATIC OF THE (n, p) REACTION CROSS SECTIONS AT ENERGY 14.5 MeV. A series of various nuclear characteristics are described by means of isotonic dependence on the neutron excess parameter $\ln G_i = a_i - b_i (N-Z)/A$, where a_i, b_i are constants, Z, N - is number of protons and neutrons of nucleus with mass number A . G_i - is one of the following nuclear characteristics: the reaction (n, γ) -cross-section [1], the probability of spontaneous heavy even nuclei decay at alpha-emission, fission and emission of fragments [2]. In fig. the validity of isotonic systematics for description of the (n, p) reaction cross-section (in mb) at energy 14.5 MeV is demonstrated..

GOLD, NEPTUNIUM, PLUTONIUM AND AMERICIUM X-RAY PRODUCTION BY 10-84 MeV PROTONS. Spectra of Au, Np, Pu and Am x-rays produced by proton (10-84 MeV) bombardment have been measured with a semiconductor detector. As a source of protons Radium Institute synchrotron was used. Lx-ray production cross-sections for trans-uranium elements (comparatively to gold) have been determined, as well as intensity ratios of separate gross spectral features (L_α, L_β and L_γ). Besides, ratios of K x-ray production to L x-ray production cross sections for gold have been measured. - The target thickness used lays in the range 0,48-1,3 mg/cm. Experimental data have been compared with theoretical predictions within the plane-wave Born approximation.

RELATIVE PROTON INDUCED FISSION CROSS SECTIONS OF ^{232}Th , ^{233}U , ^{235}U , ^{237}Np AND ^{239}Pu FOR PROTON ENERGIES FROM 25 TO 70 MeV. The proton induced fission cross sections of ^{232}Th , ^{233}U , ^{235}U , ^{237}Np and ^{239}Pu relative to that of ^{238}U have been measured for proton energies from 25 to 70 MeV with the purpose of the energy dependence studying of the branching ratio Γ_n/Γ_f for neutron evaporation and fission at the nuclei excitation energies equal several tens MeV. Measurements were performed at the V.G.Khlopin Radium Institute proton synchrotron with the using of the thin-film breakdown counter of fission fragments technique [1]. The targets of the above isotopes and of ^{238}U were installed "back-to-back" at the angle of 45° to the beam direction in such a way that fission fragments from each target were detected by the separate counters. The experimental accuracy was about 8%.

(n, n' γ)-REACTION EXCITATION FUNCTION MEASUREMENT ON THORIUM-232 AND URANIUM-238 NUCLEI. The measurements, were carried out at the Van-de-Graaf accelerator EG-5 using monochromatic neutrons of the $^3\text{H}(p, n)^3\text{He}$ reaction in energy range 0.7-1.7 MeV. The gamma-spectra were measured with a Ge(Li)-spectrometer. Four cylindrical samples (^{232}Th , ^{238}U , ^{12}C and ^{235}U) were attached to a changing device managed by a computer on-line. This allowed to obtain in identical conditions the main gamma spectra (^{232}Th and ^{238}U) as well, as the background (^{12}C and fission gamma-ray spectra ^{235}U). For neutron flux determination the multi-detector system was used which consisted of three Ionization chambers and two ^{232}Th , ^{238}U and ^{237}Np -layers were placed close to the sample. Two meter distant plastic scintillator detectors registered the target neutrons passed through the sample and "undistorted", at the angles of 0 and 22 degrees, respectively. In the measured gamma-spectra above 100 gamma-transitions were revealed. Among them, 47 gamma-transitions were identified as clearly originating from the, neutron inelastic scattering. Their intensities were transformed into 26 level excitation cross sections (14 of ^{232}Th and 12 of ^{238}U). On the whole, our data are in a good agreement with the Lowell group results [D. V. S. Chan et al. Phys. Rev. C, 26, 841 (1982)] excluding some levels (e.g. 950 keV of ^{238}U and 1023 keV of ^{232}Th) where the remarkable differences may be probably explained by the differences of the level schemes used.

MEASUREMENT OF NEUTRON SPECTRA FROM FAST NEUTRON INDUCED FISSION OF ^{232}Th , $^{235}\text{-}^{238}\text{U}$ AND ^{237}Np . Fission neutron spectra have been measured at V.G.Khlopin Radium Institute for incident neutron energies $E_n=2.9$ and 14.7 MeV. Primary neutrons were obtained as a steady beam of neutron generator NG-400 in reaction (d, D) and (d, T). Measurements were done using time-of-flight-technique at angle 90° relative to incident neutron beam at flight path length 2,05 m in energy region 0,25-12 MeV. We used a multi-layer 4-sectional ionization chamber to signal the occurrence of fission event. One of sections contained the layers made of the isotope under analysis with the isotope ^{252}Cf uniformly embedded in them. Fission neutron spectrum measurements were performed with respect to the standard spectrum of ^{252}Cf and both spectra "were measured simultaneously. The neutron detector was styrene monocystal $\varnothing 10$ cm. and $h=4$ cm equipped with pulse shape n- γ -discriminator. Overall timing resolution was 2.5 ns. Time-of-flight data were corrected for the effects of distortion due to finite energy fission chamber.

MEASUREMENTS OF CROSS SECTIONS OF THE $^{109}\text{Ag}(n, 2n)$, ^{108}mAg , $^{151}\text{Eu}(n, 2n)$, ^{150}Eu , and $^{153}\text{Eu}(n, 2n)^{152}\text{Eu}$ REACTIONS AT NEUTRON ENERGY 14 MeV. In the present work The irradiations were carried out at the neutron generator NG-400. There were four assemblies placed at 0° and 120° with respect to the beam. Each assembly contained three isotopes studied, i.e. ^{109}Ag , ^{151}Eu and ^{153}Eu . and also two neutron monitor foils made of ^{93}Nb . The samples were isotopically pure. The $^9\text{Li}(n, 2n)^9\text{Li}$ reaction was used as a standard for neutron fluence determination. The cross-section of this reaction was shown to change no more than + 1% in the neutron range 14.1-14.8 MeV, and the uncertainty of the evaluation of the cross section at 14.7 MeV is 1.6%; The mean energy and the energy dispersion of neutrons at the given angle in the laboratory system were calculated by a program using the recommended data on the $^3\text{H}(d, n)^4\text{He}$ reaction in the centre of mass system. The induced gamma-ray activity was measured with a Ge(Li)-detector. Its energy resolution was 2.7 keV and the peak efficiency was 7.9% at 1332 keV gamma-ray energy. The data were processed by multi-channel analyzer NOKIA LP 4900B. The main uncertainties of the cross-sections are the following: -the uncertainty, of the effective fluence

determination <4%, -the uncertainty of the effective fluence determination up to 15% for very weak peaks; -the half-life uncertainty up to 17% for the ^{108}mAg .

INVESTIGATION OF (n, p) AND (n, n'p) REACTIONS ON ^{27}Al , ^{28}Si , ^{50}Cr , ^{54}Fe , ^{56}Fe , ^{58}Ni , ^{60}Ni AT 14.1 MeV NEUTRONS. Energy and angular distributions of protons for (n, p) and (n, n'p) reactions induced by 14.1 MeV neutrons on ^{27}Al , ^{28}Si , ^{50}Cr , ^{54}Fe , ^{56}Fe , ^{58}Ni , and

^{60}Ni have been measured with a counter telescope. Cross-sections for these processes were found.

The nuclear temperatures and level density parameters of residual nuclei have been obtained from analysis of proton energy spectra for (n, p) reactions.

INELASTIC SCATTERING OF NEUTRONS ON ZIRCONIUM ISOTOPES WITH EXCITATION OF INDIVIDUAL LEVELS, inelastic scattering of neutrons with excitation of individual levels for ^{90}Zr , ^{91}Zr , ^{94}Zr was studied by means of accompanying gamma-radiation

method. The neutron energy range between excitation threshold and $E_n=2400$ keV. Results are represented in tables and plots.

NEUTRON RADIATIVE CAPTURE CROSS SECTION FOR ^{232}Th AND ^{197}Au BETWEEN

0,8 AND 2,5 MeV. With help of the activation method the cross-sections of a radiative capture,

of neutrons for thorium-232 in the energy range from 0,82 to 2,44 MeV relative to $\sigma_{\text{nf}}^{197}\text{Au}$ and $\sigma_{\text{nf}}^{235}\text{U}$ have been measured. As the neutron source served the reaction $T(p,n)^3\text{He}$ carried

out on the Van-de-Graaf accelerator in Inst. Jadernykh Issled. AN Ukrainskoj SSR, Kiev. The induced activity recording was made with the Ge(Li) detector according to the gamma-line ^{233}U with $E=312$ keV. At the same time the cross-section of the radiative capture for ^{197}Au relative to $\sigma_{\text{nf}}^{235}\text{U}$ has been determined.

NEUTRON LEAKAGE SPECTRA FROM Al, Ni AND Ti SPHERES WITH CENTRAL 14 MeV NEUTRON SOURCE. Neutron leakage spectra from a few spheres have been measured on 14 MeV pulsed neutron generator facility of Institute of Physics and Power Engineering. The experiment has been performed by time-of-flight technique. This work describes the experimental set-up, data acquisition and reduction methods. Experimental data are compared with calculations performed with BLANC code and evaluated data files ENDF, ENDL, JENDL and BROND.

MEASUREMENTS AND EVALUATIONS OF THE AVERAGED CROSS-SECTION FOR $^{89}\text{Y}(n, 2n)^{88}\text{Y}$ FOR THE FISSION ^{235}U NEUTRONS. Averaged cross-section for $^{89}\text{Y}(n, 2n)^{88}\text{Y}$ was measured for ^{235}U fission neutron spectrum. Experimental result is $0,170 \pm 0,014$ mb. Evaluated value is $0,161 \pm 0,010$ mb.

LONG-LIVED ISOTOPE PRODUCTION CROSS-SECTION CALCULATION FOR STRUCTURAL MATERIALS IRRADIATED WITH NEUTRONS AT THE ENERGIES

HIGHER THAN 20 MeV. The comparison of different approaches for cross-section calculation at the intermediate energies has been performed. The prediction powers of the Hauser-Feshbach and Weisskopf models, exciton model in "closed" form and GDH model were investigated. The long-lived radio-nuclide production cross sections at the energies up to 100 MeV for different structural materials have been calculated.

STATUS OF DELAYED NEUTRON DATA FOR PROBLEM OF TRANSMUTATION ACTINIDES. The status of delayed neutron data of the most important actinides: Np-237, Pu-238, Am-241 and Am-243 for the problem of nuclear transmutation is considered. The calculational and experimental data for six groups and total delayed neutron yields are presented. It was shown, that the current status of delayed neutron data don't satisfy the needs of nuclear power engineering, in particular the needs of nuclear transmutation in calculational and experimental investigations.

EVALUATION OF PROMPT NEUTRON SPECTRA OF FISSION FOR USING IN ENGINEERING CALCULATIONS. The mean energies of prompt fission neutron spectra ^{235}U , ^{233}U , ^{239}Pu and ^{252}Cf and dependence parameters of Watt type distribution from a number of secondary neutrons of fission have been evaluated. Influence fission spectra on reactor characteristics has been considered.

EVALUATION OF ^{231}Pa , ^{232}Pa , ^{233}Pa . NEUTRON DATA. Experimental data in fast neutron energy region are reviewed. The calculated fission and (n, nx) reaction cross section are compared with JENDL-3 and ENDF/B-V evaluated data. The discrepancies with previous evaluations are discussed to be due to model deficiencies.