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SIMULTANEOUS MULTI-LEVEL ANALYSIS OF THE ^{239}Pu TOTAL AND FISSION CROSS-SECTIONS UP TO 160 eV. We used for cross-sections general results of S-matrix theory taking into account Doppler effect as well as an experimental resolution. The data for total

and fission cross-sections were analyzed, using the computer code, based on the least-square method, in the energy range up to 160 eV. Our set of resonance parameters reproduce all features of energy behaviour in the resolved resonance region.

ANGULAR ANISOTROPY OF FISSION FRAGMENTS OF ^{232}Th , ^{233}U , ^{235}U BY NEUTRONS WITH 12.4 – 16.4 MeV. The angular anisotropy of the fission fragments of ^{232}Th , ^{233}U , ^{235}U , ^{238}U , ^{237}Np , ^{238}Pu and ^{239}Pu were studied using the glass detectors. The measurements were performed in the neutron energy range 12,4-16,4 MeV. The angular distribution of most of the nuclei was fitted by $\cos \theta$ quadratic dependence. The dependence of $\cos \theta$ should be made for ^{232}Th and ^{238}U . The result was compared with the data of the other authors.

TRANSITION STATES OF FISSIONABLE ^{235}U NUCLEUS. The channeling analysis of the experimental data on ^{235}U nuclei fission in $^{233}\text{U}(t, pf)$, $^{234}\text{U}(n, f)$ and $^{235}\text{U}(\gamma, f)$ - reactions has been performed. Fission barrier parameters of the fissionable ^{235}U nucleus transition state lower bands have been retrieved as a result of analysis. All peculiarities of the experimental

data energy dependence referring to compound nucleus ^{235}U fission are well reproduced in the calculations of cross-sections in (n, f) - and (γ, f) -reactions and the fission probability calculations in (t, pf) - reactions using the retrieved parameters set simultaneously for all reactions mentioned.

THE CALCULATION METHOD OF GAMMA SPECTRUM AND CROSS-SECTION GAMMA-GENERATION ON INELASTIC SCATTERING OF NEUTRONS. The calculation method of gamma spectrum and cross-section gamma generation on inelastic scattering of neutrons is shown. This method gives well agreement with experimental results. The calculation gamma spectrum for reaction $^{23}\text{Na}(nn', \gamma)$ for different energy of neutrons are carry out.

FAST-NEUTRON EXCITATION CROSS-SECTIONS FOR ISOMER ^{180}Hf

The average cross-section for the ^{180}Hf ($T_{1/2} = 5.5 \text{ b}$, $I\pi = 8^-$) isomer production via. (n, n') reaction was measured. The value obtained $\langle \sigma_{nn} \rangle = 7.6 + 0.7 - 0.4 \text{ mb}$ is comparable with the excitation at 8^+ g.s. band level and is in agreement with optical model predictions.

THE DETERMINATION OF THE ABSOLUTE INTENSITY OF THE GAMMA-RAYS 208keV ^{237}U and 964keV ^{238}Np . The absolute intensities of ^{237}U (208keV) and ^{238}Np (964keV) γ -rays were determined γ -spectrometry. The γ -spectra of ^{236}U and ^{237}Np samples irradiated in thermal neutron flux were measured. The Ge(Li)-detector absolute efficiency was determined by the set of standard spectrometric γ -source. The obtained absolute intensity values are compared with the known reference value.