systematics. Besides that new systematics have more realistic tendencies for the nuclei far from stability line, because the predictions of the empirical systematics for the regions of relatively small and large mass numbers are incorrect. The minimization of the differences between calculated and experimental data results in a reasonable ratio of the contributions of the equilibrium and nonequilibrium reaction mechanisms.

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CROSS-SECTION DATA LIBRARY MENDL-2P TO STUDY ACTIVATION AND TRANSMUTATION OF MATERIALS IRRADIATED BY NUCLEONS OF INTERMEDIATE ENERGIES

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The Medium Energy Nuclear Data Library, MENDL-2P, includes more than 87.000 threshold reactions taking place in proton irradiation of nuclei from Al to Po at energies 0-200 MeV. The data are presented for 505 stable nuclei and unstable nuclei with half-life more than I day. The library is the development of MENDL-2 library which contains the data for neutron induced reactions in the energy interval up to 100 MeV. MENDL-2P library was obtained on the basis of nuclear reaction model calculations using the modified version of the ALICE code, the ALICE-IPPE code. This version differs from the previous ones in several aspects. Algorithm for the level density calculation according to the generalized superfluid model was tested, corrected and improved. Preequilibrium cluster emission calculation was included on the basis of new approach taking into account the pick-up and knock-out processes. The improvements were made for the algorithm of multiple precompound proton emission spectra calculation near threshold, Kalbach systematic treatment, for cross-sections calculations taking into account gamma-ray emission and optical model parameters. The calculated cross sections were corrected using the available experimental data and cross-section systematics. The comparisons with experimental data for proton induced reactions was made. The MENDL-2P data format and index is briefly described.

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VERIFICATION OF THE ABBN-93 GROUP CROSS SECTION SYSTEM BASING OF INTEGRAL EXPERIMENTS

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Results of verification of the ABBN-93 group cross section set retrieved by the CONSIST code are presented. The ABBN-93 set was obtained on the basis of the neutron data files selected from Russian (BROND-2) and modern options of the foreign nuclear data libraries. Selection was doing taking in the attention in particularly the degree of agreement between the calculated parameters of fast critical assemblies and experimental one. In this report comparison between calculational and experimental data are provided for much wider range of integral experiments than used in the file selection process. So high-enriched uranium and plutonium assemblies with different reflectors, uranium solution critical system,

water moderated fuel rod lattices, spherical experiments with central neutron source are considered. Reasonable agreement between calculational and experimental results allows to consider the ABBN-93 group cross section system as universal data base for neutron calculations. Some needs of further improvements are discussed

ANALYSIS OF SOME MEASUREMENTS ON BFS FACILITY USING MCNP CODE AND ENDF/B-5, ENDF/B-6 POINTWISE CROSS SECTION LIBRARY.

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Fission cross sections ratios of some U and Pu isotopes to Pu-239 were measured at fast critical assembly some years ago. The experimental results were analyzed at IPPE, using standard Russian ABBN group constants library. Results of the calculations with ENDF/B-5 and ENDF/B-6 libraries and MCNP Monte Carlo code are presented now for very detalized 3D-core model. The appropriate ENDF/B-5 and ENDF/B-6 pointwise libraries, generated by NJOY94.10 nuclear data processing system were used. The results are compared with experimental ones and with one- dimensional ANISN-TRANSX calculations with ENDF/B-6 library in MATXS format.

ANALYSIS OF NUCLEAR DATA FOR THE THORIUM FUEL CYCLE

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For the thorium fuel cycle of nuclear power engineering the fission and radiative capture cross sections for Th-232, Pa-231, U-232, LI-233 U-234 are required with accuracy of 3-5 percent. There are not enough experimental data and the existing evaluated data files are based mostly on theoretical calculations and do not meet the requirements.

In the present work the analysis was made of experimental and available evaluated cross sections for the isotopes mentioned from the data libraries ENDF/B-VI, JENDL-3.2, BROND-2, JEF-2. The discrepancies in cross sections are shown and recommendations are given for new measurements and evaluations of data.

ANALYSIS OF HE PRODUCTION IN NUCLEAR FUEL AS A METHOD OF INTEGRAL TESTING OF THE REACTOR CODES AND NUCLEAR DATA

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XA9950612

Helium production in the process of irradiation, reprocessing and storage nuclear fuel with high content of minor actinides (MA) can reach hundreds and thousands moles per THM, mainly from MA alpha decay. So evaluation of helium production becomes necessary for appropriate choice of such fuel management technology. Furthermore, such evaluation gives opportunity to asses real accuracy of