Ukrainian Nuclear Data Center: Progress Report for period 2024-2025. Summary of Nuclear Data Activity by Staff of the Ukrainian Nuclear Data Center June 2024 – June 2025

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Ukrainian Nuclear Data Centre (UkrNDC) is subdivision within the Neutron Physics Laboratory at the Institute for Nuclear Research of the National Academy of Sciences of Ukraine.

Compilation

We continue collection and compilation of experimental neutron, charged particle and photonuclear data. Numbers of the new/renew EXFOR's entries sent to the NDS IAEA by UkrNDC are the following:

- for neutron data – 4 new entries (32238, 32252÷32254);
- for charged particle data – 8 new entries (D5189, D5204÷ D5210);
- for photonuclear data – 7 new entries (G4109÷G4115).

Full information about the articles compiled by UkrNDC presented in Tab. 1.

Table 1. Title of journal and article, first author, number of entry and content of entry compiled by UkrNDC during June 2024 – June 2025

#	Title of journal	First author	Title of article	Entry	Content
1	2012KYIV,1,439,2012	O.O.Gritzay	The averaged cross sections of natural carbon in the energy region 90 - 160 keV	32238	6 subs+ 5 spectra
2	UFZ,39,276,1994	L.L.Litvinskiy	Inelastic scattering of 134 keV neutrons by 103Rh	32252	6 subs+ spectrum
3	PL/B,859,139100,2024	Ihor Kadenko	Formation of bound dineutrons in the 175Lu(n,^{2}n) 174gLu nuclear reaction and its cross-section	32253	2 subs+ spectrum
4	NP/A,1041,122788,2024	A.M. Savrasov	Investigation of fast neutron reactions in natural lutetium	32254	6 subs
5	YFE,21,21,2020 APP/B,51,1949,2020	S.Yu.Mezhevych	^{13}C(^{11}B,^{12}C)^{12}B reaction mechanisms at 45 MeV and interaction of ^{12}C + ^{12}B, ^{12}C + ^{10,11}B nuclei	D5189	2 subs
6	SNP,54,552,1991	A.S.Goncharov	Nuclear rainbow in 12c + 3He and 12c + 4He scattering	D5204	5 subs
7	SNP,55,1527,1992	A.S.Dem'yanova	Transfer of heavy clusters in the reaction 12C(4He,12C)4He	D5205	2 subs
8	PR/C,103,044614,2021	A. T. Rudchik	6Li+15N interaction at Ec.m.=23.1 MeV: Validation of the alpha+d cluster model of 6Li	D5206	3 subs

9	PR/C,106,014615,2022	A. T. Rudchik	Comparison of 10B+6Li and 10B+7Li elastic scattering: The role of ground state reorientation and breakup	D5207	3 subs
10	ARI,189,110431,2022	B.M. Bondar	Determination of the experimental yield of ^{99m}Tc in (p,2n) nuclear reaction on enriched ^{100}Mo sample with application of 11-MeV medical cyclotron	D5208	2 subs
11	ARI,198,110864,2023	V.I. Kirischuk	^{178m2}Hf isomer production cross-sections for Ta target irradiated by alpha-particles in the energy range from 36 to 92 MeV	D5209	2 subs
12	PS,99,105316,2024	S.Yu.Mezhevych	Analysis of 11 B + 13,14C scattering and 13C(11B,10B)14C reaction data at Elab (11 B) = 45 MeV using energy dependent optical model systematics for carbon isotopes	D5210	2 subs
13	VAT/I,,(3/151),15,2024	I.S. Timchenko	Cross-sections of photoneutron reaction ^{nat}Mo(γ,xn)^{93m}Mo at the bremsstrahlung energy up to 95 MeV	G4109	2 subs
14	VAT/I,,(5/153),12,2024	Ye. Skakun	Integral yields of photoneutron reactions on tin isotopes 118Sn and 124Sn in the near-threshold energy region	G4110	3 subs
15	EPJ/CS,239,01026,2020	O. Bezshyyko	Isomer ratios for products of photonuclear reactionson Rh	G4111	2 subs
16	EPJ/A,58,118,2022	V.A Zheltonozhsky	Investigation of (γ,p)-reactions on zirconium and molybdenium nuclei	G4112	8 subs
17	EPJ/A,60,60,2024	I. S. Timchenko	Cross-section of the 95 Nb production on natural molybdenum at the bremsstrahlung end-point energy up to 95 MeV	G4113	3 subs
18	J,AND,160,101674,2024	I. S. Timchenko	Photoproduction of the Co nuclei on Ni at the bremsstrahlung end-point energy of 35–94 MeV	G4114	4 subs
19	RPC,216,111387,2024	V.O.Zheltonozhsky	Investigation of (gamma, xpxn)-reactions on titanium, lutetium, nickel and chromium nuclei at Ebr=37 MeV	G4115	7 subs

We realize review of compilation scope in home journals:

- Nuclear Physics and Atomic Energy;
- Ukrainian Journal of Physics;
- Problems of Atomic Science and Technology, Series Nuclear Physics Investigations;
- East European Journal of Physics.

Collaboration

We continue our collaboration with the Nuclear Physics Department of Taras Shevchenko National University of Kyiv.

The teaching course “Nuclear Data and modern computer codes for nuclear data processing” (42 hours) was lectured in 2024-2025 for the fifth-course students of the NPD KNU. This course includes the following items: ENDF/B libraries, EXROR system, ENSDF library, the use of the PREPRO codes in work with the ENDF/B libraries, the introduction to NJOY code system, the Network of Nuclear Reaction Data Centers and the use of the on-line services.

We continue our activity within the framework of educational and scientific program of the Institute for Nuclear Research of the National Academy of Sciences of Ukraine on the preparation of a doctor of philosophy in specialty 01.04.16 (physics of the nucleus, elementary particles and high energies).

- The teaching course “Experimental methods of nuclear power engineering” (26 hours) was lectured in September-October 2024 for post-graduate students in the 1-st year of study.
- The teaching course “Modern codes and nuclear data” (26 hours) was lectured in January-February 2025 for post-graduate students in the 2-nd year of study.

Customer Services

The UkrNDC site is operating. Ukrainian customers, especially students and those physicists, who wish to prepare the point-wise and multi-group cross sections self-dependently, but do not have a good experience in it, use this site very often. Address of the UkrNDC site: http://ukrndc.kinr.kyiv.ua.

Experimental and Computational Activity

Calculation for improvement of the interference neutron filter with the average energy 134 keV was fulfilled.

Through Russian war, the Kyiv research reactor does not operate, so experimental investigation did not fulfilled.

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