

**INSTITUTE OF NUCLEAR PHYSICS**

**Compilation of experimental nuclear reaction  
data from Central Asia**

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Compilation activity started in 2013

MEMBERS:

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USING SOFTWARE:

HENDEL (JCPRG)



## **Experimental data on nuclear reaction are obtained on the following basic facilities**

- Isochronous cyclotron U-150 M (INP, Kazakhstan)
- Heavy Ion Cyclotron DC-60 (INP, Kazakhstan)
- Electrostatic accelerator UKP-2-1 (INP, Kazakhstan)
- Neutron d-t generator (INP, Uzbekistan)



# COMPILED ARTICLES

Table 1. The new EXFOR entries since the previous Technical Meeting on NRDC 2022

Entry	First author	Article	Accelerator Reaction
D0924 (D8059)	B.M.Sadykov	J,EPJ/A,58,97,2022	U-150M (3He,el)
D8053	F. Ergashev	J,APP/B,53,A5,2022	U-200P (16O+10B)
D8055	T.K.Zholdybayev	J,APP/BS,16,2-A10,2023	U-150M (d,xd)
D8056	G.A.Ussabayeva	J,APP/BS,16,2-A13,2023	U-150M (p,xp), (p,x $\alpha$ )
D8057 (ready to transfer)	D.K.Nauruzbayev	J,PPN,53,312,2022	DC-60 ( <sup>22</sup> Ne,alpha)
D8061 (ready to transfer)	V.V.Dyachkov	J,APP/BS,14,811,2021	U-150M (d,el)
D8062 (under revision)	S.Dubovichenko	J,CPH/C,41,0140001,2017	UKP2-1 (p,el)



# Cumulative number of EXFOR entries created from the experiments performed in Kazakhstan and Uzbekistan

Table 2. Total number of EXFOR entries created from the experiments performed in Kazakhstan and Uzbekistan

Year of compilation	2013	2014	2015	2016	2017	2018	2019	2020 2021	2022	2023
Kazakhstan	4	4	5	6	5	4	6	10	4	6
Uzbekistan	2	4	0	0	1	0	0	4	1	1
Total	6	8	5	6	6	4	6	14	5	7



# Articles that have not yet been compiled in EXFOR

Table 3. List of articles that are missing in EXFOR

#	1 <sup>st</sup> author	reference	year
1	Burtebayev	<a href="#">J,JP/CS,590,012056,2015</a>	2015
2	Burtebayev	<a href="#">J,APP/B,50,703,2019</a>	2019
3	Burtebayev	<a href="#">J,IMP/E,28,1950028,2019</a>	2019
4	Burtebayev	<a href="#">J,APP/B,50,1423,2019</a>	2019
5	Janseitov	<a href="#">J,APP/B,51,745,2020</a>	2020
6	Nassurlla	<a href="#">J,APP/B,51,751,2020</a>	2020
7	Amangeldi	<a href="#">J,APP/B,51,757,2020</a>	2020
8	Burtebayev	<a href="#">J,JP/CS,1555,012028,2020</a>	2020
9	Nassurlla	<a href="#">J,CPH/C,44,104103,2020</a>	2020
10	Nassurlla	<a href="#">J,EPJ/A,57,231,2021</a>	2021
11	Nassurlla	<a href="#">J,NP/A,1023,122448,2022</a>	2022
12	Soldatkhan	<a href="#">J,RBF,52,152,2022</a>	2022
13	Burtebayev	<a href="#">J,APP/B,48,495,2017</a>	2017



# Action A33 “Scan domestic publications (e.g., journals, laboratory logbooks) to identify articles for EXFOR compilation”

As part of the implementation of various NRDC’s Actions since 2017, the following tasks have been completed with the data tabulated by the experimentalists:

1. Scanning of the domestic journal “Izvestiya of Kazakh Academy of Science”;
2. Scanning of Institute’s preprints and laboratory logbooks and preparing numerical data.

- When there is an EXFOR entry compiling the same data set (typically by digitization) with an appropriate citation, we revised the EXFOR entries.

Revised entries: F0497, F0560, F0561, F0570, F0668, F0672, F0865, F0940, F1160, F1168, F1184.

- When we could not find any publication in EXFOR suitable for citation, the data set were compiled as new EXFOR entries.

New entries: D8011, D8012, D8013, D8014, D8015, D8016, D8017, D0924, D0926, D0929, D0939.



# Action A33 “Scan domestic publications (e.g., journals, laboratory logbooks) to identify articles for EXFOR compilation”

Within action A33 (Continuing action) “Scan domestic publications (e.g., journals, laboratory reports) to identify articles for EXFOR compilation” we continue to find the numerical data in laboratory logbooks which we can include in the new or old EXFOR entries.

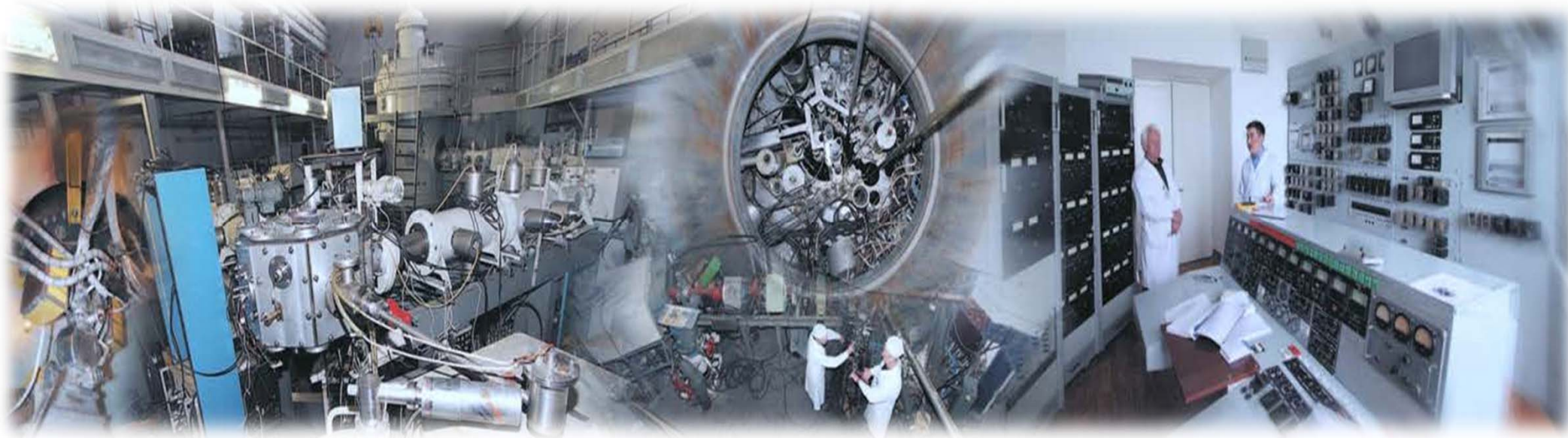
We prepared numerical data for next nuclear reactions.

1. Numerical data on double-differentials cross-section from interaction of deuteron with energy of 25 MeV with  $^{56}\text{Fe}$ ,  $^{60}\text{Ni}$ ,  $^{59}\text{Co}$  and  $^{116}\text{Sn}$  kept in a laboratory logbook were made computer readable;
2. Numerical data on double-differentials cross-section  $(\alpha, xp)$ ,  $(\alpha, xd)$ ,  $(\alpha, xt)$  and  $(\alpha, x\alpha)$  from interaction of  $\alpha$ -particles with energy of 50 MeV and  $^{208}\text{Pb}$  kept in a laboratory logbook were made computer readable

We propose to close this action as we have completed scanning of the journal issues and laboratory logbooks. We will do compilation if we find something.







**THANKS FOR YOUR ATTENTION**