

CINDU

**CATALOGUE OF NUMERICAL NEUTRON DATA
AVAILABLE FROM THE IAEA NUCLEAR DATA UNIT**



IAEA NUCLEAR DATA UNIT, KÄRNTNER RING 11, A-1010 VIENNA

LAB CODES

LAB	LABORATORIES	COUNTRY
ALD	AWRE ALDERMASTON	UK
AML	MELBOURNE, UNIVERSITY	AUL
ANL	ARGONNE NATIONAL LAB, ILLINOIS	USA
ARK	U. OF ARKANSAS, FAYETTEVILLE	USA
AUA	AAEC RES. ESTABL., LUCAS HTS, NSW	AUL
BHU	BANARAS HINDU UNIV, VARANASI	IND
BNL	BROOKHAVEN NATIONAL LAB	USA
BHW	BATTELLE-NORTHWEST, RICHLAND	USA
BOL	BOLOGNA	ITY
BKK	RADIATION LAB BERKELEY, CALIF.	USA
BSP	SAO PAULO, IEA AND UNIVERSITY	BZL
BUC	INST. DE FIZ. ATOMICA, BUCHAREST	RUM
CAI	A.E.E. CAIRO	UAR
CCP	USSR	CCP
CNA	CEKMECE NUC. RES. CENTR, ISTAMBUL	TUR
COL	COLUMBIA UNIVERSITY, NEW YORK	USA
CRC	CHALK RIVER, ONTARIO	CAN
CSE	CASE INST OF TECH, CLEVELAND	USA
DAC	ATOMIC ENERGY CENTRE, DACCA	PAK
DEB	ATOMMAG KUTATO INT., DEBRECEN	HUN
DUB	JOINT INST. NUCL. RES. DUBNA	CCP
FEI	FIZIKO-EN. INST., OBNINSK	CCP
FTI	FIZ-TEKW INST IOFFE, LENINGRAD	CCP
GIT	GEORGIA INST OF TECH, ATLANTA	USA
HAM	UNIVERSITAET HAMBURG	GER
HAN	HANFORD, BATTELLE NORTHWEST	USA
HAR	AERE, HARWELL	UK
HFA	TECHNION HAIFA	ISL
HLS	UNIVERSITY HELSINKI	SF
IAE	INTERN. ATOMIC EN. AGENCY, WIEN	AUS
IFU	INST. FIZ. UKRAINSKOI SSR, KIEV	CCP
IRK	INST RADIUMFORSCHG+KERNPH, WIEN	AUS
ITE	INST. TEORET. I EKSP. FIZ. MOSKVA	CCP
JAE	JAPAN AT EN RES INST, TOKAY	JAP
JNA	UNIVERSITAET JENA	GER
KAP	KNOLLS AT POWER LAB, SCHENECTDY	USA
KBN	KONAN UNIVERSITY	JAP
KUR	INST. ATOM. EN. KURCHATOV, MOSKVA	CCP
LAS	LOS ALAMOS SCI. LAB, NEW MEX	USA
LEB	FIZ. INST. LEBEDEV (FIAN), MOSKVA	CCP
LOK	LOCKHEED AIRCRAFT, CALIFORNIA	USA
LRL	LAWRENCE RAD. LAB, LIVERMORE	USA
LVN	UNIVERSITE LOUVAIN	BLG
MOL	CEN MOL	BLG
MTR	PHILLIPS PETR. CO.-MTR, IDAHO	USA
MUA	MUSLIM UNIVERSITY, ALIGARH	IND
NAP	UNIVERSITY OF NAPOLI	ITY
NDC	ENEA N. DATA COMP. CENTRE, SACLAY	FR
NOR	NORWAY	NOR
ORL	OAK RIDGE NATIONAL LAB	USA
RBZ	INST. R. BOSKOVIC, ZAGREB	YUG
RI	RADIEV. INST. KHLOPIN, LENINGRAD	CCP
RPI	RENSSELAER POLYTECH. INST.	USA
SAC	C.E.N. SACLAY, SEINE ET OISE	FR
TAT	TATA INSTITUTE, BOMBAY	IND
TRI	U. OF TRIESTE	ITY
TRM	BHABHA AT. RES. CENTRE, TROMBAY	IND
TUD	TECHN. UNIV. DRESDEN + PIRNA	GER
UFT	UKRAINSK. FIZ-TEKH. INST. KHARKOV	CCP
WIS	U OF WISCONSIN, MADISON	USA
WVA	WARSAWA+SWIERK, U+INST BAD JAD, POL	

REF CODES

REF	REFERENCES	COUNTRY
55GENEVA	1. IAEA CONF GENEVA, 1955	IAE
55MOSKVA	CONF MOSKVA 1955	CCP
56KIEV	CONFERENCE KIEV 1956	CCP
57COLUMBIA	CONF. COLUMBIA U. 1957	USA
58GENEVA	2. IAEA CONF GENEVA, 1958	IAE
60VIENNA	SYMP PILE NEUTR RES, WIEN, IAE	IAE
61RPI	SYMP NEUTRON PHYS, AT RPI, USA	USA
61SACLAY	CONF SACLAY 1961	FR
62PADUA	CONFERENCE PADUA 1962	ITY
63SAULO	CONF SAO PAULO 1963	BZL
64DUBNA	CONF DUBNA 1964	CCP
64GENEVA	3. IAEA CONF GENEVA, 1964	IAE
64PARIS	INT. CCNF PARIS JULY 1964	FR
65ANTHERP	INT. CONF ANTHERP JUL 1965	BLG
65SALZB	IAEA CONF SALZBURG 1965	IAE
66GATLNB	CONF NUCL PHYS, GATLINBURG, USA	USA
66PARIS	IAEA CONF PARIS OCT. 1966	IAE
66SDIEGO	ANS CONF SAN DIEGO, FEB 1966	USA
67KHARKOV	CONF KHARKOV JAN-FEB 1967	CCP
67TOKYO	INT. CONFERENCE TOKYO, 1967	JAP
AAEC-	REPT AUSTRALIAN AEC	AUL
ADP	ANNALEN DER PHYSIK	GER
AE	ATOMNAJA ENERGIJA	CCP
AEC-	REPT USAEC	USA
AECD-	REPT DTIE, DISCNT'D 1960	USA
AECD-	REPT. AT. EN. CENTRE, DACCA, PAK	PAK
AECL-	REPT. OF AECL CHALK RIVER	CAN
AEE-	REPT. BHABHA AT. RES. CENTR	IND
AERE-	REPT. AERE HARWELL	UK
AHP	ACTA PHYS. ACAD. SCI. HUNG.	HUN
AK	ATOMKI KOZLEMENYEK	HUN
AKS	ATOMKI KOZLEMENYEK, SUPPL., HUN.	HUN
ANL-	REPT. ARGONNE NATL LAB	USA
ANS	TRANS. AM. NUCL. SOC.	USA
BAP	PULL. AM. PHYS. SOC.	USA
BNL-	REPT BROOKHAVEN NAT'L LAB, USA	USA
CCON-NW	NEWSLETT. ENEA NDCC, SACLAY, FR	FR
CEA-	REPT. OF C.E.N. SACLAY	FR
CJP	CANADIAN J. OF PHYSICS	CAN
CNAEM-	CEKMECE NUC. RES., ISTAMBUL, TUR	TUR
CONF	USAEC CONF PROCEEDINGS	USA
COO-	REPT USAEC	USA
CR	COMPTES RENDUS	FR
CRGP-	REPT. CHALK RIVER	CAN
CRRP-	REPT. CHALK RIVER	CAN
DASTAR-	DATA TAPE IAEA, VIENNA	IAE
DOK	DOKLADY AK. NAUK SSSR	CCP
DUB-	REPORTS OF JINR, DUBNA	CCP
EAF	ENERGIE ATOMIQUE (AE)	FR
EANDC-	DOCUMENTS OF EANDC, PARIS	FR
EON	EURONUCLEAR	UK
FEI-	REPT. FIZ-EN. INST OBNINSK	CCP
HW-	HANFORD REPORT SERIES	USA
IAE-	REPT. INST. AT. EN. KURCHATOV, CCP	CCP
ICD-	BULL. INFO. CENTR OBNINSK	CCP
IDO-	REPT. IDAHO DP-OFFICE, ACC, USA	USA
IEA-	REPT INST EN AT, SAO PAULO, BZL	BZL
IN-	REPORTS IDAHO NUCL. CORP.	USA
INDC-	REPT. IAEA NUCL. DATA UNIT	IAE
INDSWG-	REPT. IAEA NUCL. DATA UNIT	IAE
INP-	REPTS INST. FIZ. JAD, KRAKOW, POL	POL
INR-	REPT. INST. BADAN JADR.	POL
ITE-	REPT. OF ITEF MOSKVA	CCP
IZV	IZVESTIJA AN. SSSR, SER. FIZ.	CCP
JET	SOV. PHYS. JETP (ZET)	USA
JNE	J. NUCL. ENERGY	UK
JPJ	JOURN. PHYS. SOC. JAPAN	JAP
JPR	JOURN. DE PHYSIQUE (RADIUM)	FR
KE	KERNENERGIE	GER
KFK-	REPT. KERNFIZNTR. KARLSRUHE, GER	GER
LA-	REPT. LOS ALAMOS SCI. LAB	USA
LADC-	REPT LOS ALAMOS SCI LAB	USA
MFF	MAGYAR FIZIKAI FOLYOIRAT	HUN
NAT	NATURE	UK
NC	NUOVO CIMENTO	ITY
NEJTRONFIZ	NEJTR. FIZIKA, MOSKVA 1961	CCP
NP	NUCL. PHYS.	NED
NRDC-	REPT AERE HARWELL	UK
NSE	NUCL. SCI. ENG.	USA
ORNL-	REPT. OAK RIDGE NATL. LAB,	USA
PL	PHYSICS LETTERS	NED
PR	PHYS. REV.	USA
PRL	PHYS. REV. LETTERS	USA
PRS	PROC. ROY. SOC (LONDON)	UK
PT	PHYSICS TODAY	USA
PTE	PRIBORY I TEKH. EKSP.	CCP
REA	ATOMIC ENERGY REVIEW	IAE
RST	REV. SCI. INSTR.	USA
SCF	STUDII CERCETARI DE FIZ.	RUM
SCISRS	DATA TAPE BROOKHAVEN+SACLAY	
SJA	SOV. J. OF AT. ENERGY (AE)	USA
SNP	SOV. J. OF NUCL. PHYS. (YF)	USA
SPD	SOV. PHYS. DOKLADY (DOK)	USA
SPN	SOV. PROGR. IN NEUTRON PHYS.	USA
TID-	REPORTS OF USAEC-DTIE	USA
UFZ	UKRAINSKIJ FIZ. ZHURNAL	CCP
WASH-	USAEC REPORTS TO NCSAG	USA
YF	JADERNAJA FIZIKA	CCP
YFI-	JAD. FIZ. ISSLEDOVANIIJA	CCP
ZET	ZHURNAL EKSP. I TEOR. FIZ.	CCP
ZFK-	REPT ZFK ROSSENOORF	GER
*PO	PRIVATE COMMUNICATION	IAE

CINDU-7

MAY 1968

CATALOGUE OF NUMERICAL NEUTRON DATA
AVAILABLE FROM THE IAEA NUCLEAR DATA UNIT

- Completely supersedes all earlier issues of CINDU -

This catalogue is the index to 'DASTAR', the Data Storage And Retrieval System of the IAEA Nuclear Data Unit. It is written in a slightly modified CINDA format and should be read with the help of the introduction to CINDA. Tables of abbreviations for references and laboratories mentioned in this issue are given on the verso of the front cover. The catalogue serves as a reference to all the experimental and calculated numerical data which have been entered into DASTAR, and each set of data is indexed with a DASTAR-number, e.g. DASTAR-00434. The bibliographic references for each experiment are blocked together with the relevant DASTAR-number entry. All of the indexed data are available to anyone on request. Data should be ordered by their DASTAR-number.

This issue of CINDU is distributed to data centres, members of the International Nuclear Data Committee, correspondents to the IAEA Nuclear Data Unit, and others who have expressed their interest. (Some of the earlier issues, CINDU-1, 2, and 4, had been distributed to data centres and INDC members only.)

Entries which have been added or changed since the issue of CINDU-6 are marked with an asterisk following the entry date.

IAEA Nuclear Data Unit, Kärntnerring 11, A-1010 Vienna

W.M. Good, P.M. Attree, T.A. Byer, L. Hjärne, V.A. Konshin, H.D. Lemmel, A. Lorenz

I N T R O D U C T I O N

As a consequence of the progress in the field of international data exchange, and in compliance with the recommendations of the International Nuclear Data Committee (INDC) to the Director General of the IAEA, the Nuclear Data Unit is operating a neutron data centre for the purposes of compilation and international exchange of neutron data.

In a worldwide distribution of labour (see Page 4*), the IAEA Nuclear Data Unit shares its responsibilities of data collection and dissemination with the data centres in Brookhaven, Saclay, and Obninsk. While the compilation and exchange of numerical data is the major task, two related activities are essential:

- (1) to collect bibliographic information on neutron data, including items not directly related to numerical data. This information is collected on an international basis and is published as CINDA, the Computer Index to the literature on microscopic Neutron Data.
- (2) to publicize the compiled data through a data index. CINDU, the Catalogue of the IAEA Nuclear Data Unit, is such an index to the DASTAR data files, held at the IAEA, Vienna, and this present issue is current as of 8 May 1968.

The user of CINDU will notice that a number of data sets are either unpublished or to be published, and that some others supersede data that have been published earlier. The existence of such data is made public by this issue of CINDU. Thus, the DASTAR-CINDU system is functioning as a computerized publicizing medium. For data entered into DASTAR, the standard publication practice is employed of returning a proof copy to the author for his comments and corrections. Data referred to in CINDU can be quoted in other publications as:

P. Kulisic: DASTAR-00364, 2. Version, Nuclear Data Unit, IAEA, Vienna, Austria.

(see the example of a DASTAR table given on page 7*)

The IAEA Nuclear Data Unit wishes to acknowledge the advice and cooperation of the data centres at Brookhaven, Saclay and Obninsk, and of the CINDA centres, the contributions of individual scientists, and, in particular, the efforts of the originators of CINDA, on which the present catalogue is based.

NOTE: An asterisk behind the DASTAR-number, e.g., DASTAR-00387*, indicates that this DASTAR-table contains unpublished data, or data published as a graph only. An asterisk behind the entry date indicates that this entry has been entered or changed since the last issue of CINDU. These asterisks are given only in CINDU but not in the DASTAR-table itself.

IAEA Nuclear Data Unit
Information on Neutron Data Compilation

GENERAL INFORMATION

1. In the overall activity of neutron data* compilation, the IAEA Nuclear Data Unit shares the responsibility of data collection and dissemination with three other centres. The following distribution of labour has been established, whereby
 - The Brookhaven National Neutron Cross-Section Center, formerly Sigma Center, services the USA and Canada,
 - The ENEA Neutron Data Compilation Centre at Saclay (France) services countries in Western Europe and Japan,
 - The Informacionnyj Centr po Jadernym Dannym (Nuclear Data Information Centre) in Obninsk services the USSR,
 - The IAEA Nuclear Data Unit, in Vienna, services all other countries in Eastern Europe, Asia, Africa, South and Central America, Australia and New Zealand.
2. An agreement has been established for centre-to-centre data exchange between the four centres listed above.
3. Producers of neutron data (by experiment, theory or evaluation) should send their results in numerical form to the data centre servicing their country, which will make them available to the other centres on request.
4. Anyone wishing to receive neutron data should send his request to the data centre servicing his country. The centre will supply the relevant data from its holdings and will obtain further data from other centres.
5. References to existing data may be found in CINDA, an index to the literature on microscopic neutron data. This index is regularly published jointly by the USAEC Division of Technical Information Extension Oak Ridge, the ENEA Neutron Data Compilation Centre Saclay, the USSR Informacionnyj Centr po Jadernym Dannym Obninsk, and the IAEA Nuclear Data Unit. Current computer prints on specific isotopes and quantities can be provided upon request.

ACTIVITIES OF THE IAEA NUCLEAR DATA UNIT

1. In order to promote the success of the IAEA neutron data compilation, and to help in keeping the data library up-to-date, all scientists in Eastern Europe, Asia, Africa, South and Central America, Australia and New Zealand are encouraged to send their data to the IAEA Nuclear Data Unit in Vienna. Neutron data resulting from experiment, theory or evaluation are requested to be sent in numerical form, together with descriptions of error analysis and normalization procedures. A list of bibliographical references pertinent to the data is also requested, and any other information which may be of importance will be welcome.
2. Unless otherwise stated, it will be assumed that data received may be freely released. Data status (e.g., preliminary) can be attached to the data being sent in; the disseminated data will then be labelled as such until further notification by the author.
3. The data can be provided to the IAEA Nuclear Data Unit in the form of printed lists, on punched cards (in either IBM BCD or USSR Obninsk formats), or on magnetic tape (7-track IBM tape in BCD format).
4. Authors will receive proof-copies of their data as they are entered in the data file.
5. The Nuclear Data Unit will provide data on request in the formats specified in 3 above, and in addition can provide graphical plots in a variety of scales.
6. CINDU, the Catalogue of data stored at the IAEA Nuclear Data Unit, is issued periodically and is available on request.

*Neutron Data is defined here as measured or deduced microscopic neutron cross-sections, related fission, capture and scattering parameters, resonance and reaction parameters, as well as any other quantities which are included in CINDA.

The following page shows an example of a DASTAR-table, which is referenced on page 80 of this catalogue. The documentation refers, in this case, to two articles published in Nuclear Physics (NP) and to the proceedings of the Conferences in Paris, July 1964 and Antwerp, July 1965. The results of this experiment are presented in four DASTAR-tables, each of which is defined by a DASTAR-number. One of the tables gives the angular distribution of the α -particles, the others give the α -spectrum at three angles. Two of the tables are published as graphs only, the other two are, to our knowledge, not yet mentioned in the literature. This example shows how authors can use the data centre for making their results rapidly available to the scientific community, long before formal publication.

In each DASTAR-table, the numerical data are preceded by comment lines which define the data and give brief information on parameters, methods, calibration, accuracy, origin of the data, description of quantities, data formats, etc. The table shown below, is in its second version. That means: after receiving the proof copy of the first version, the author has sent in some additional information, which was then included in the second version of the DASTAR-table. Anyone who had received the first version in the meantime, will receive any later version automatically.

At present, numerical data are entered into the DASTAR-system, and referred to in this catalogue in three different ways:

- DASTAR-00677: normal DASTAR-tables, kept on magnetic tape.
- DASTAR-P0006: supplementary information which is not kept on magnetic tape, and which is available only as a photocopy; the DASTAR-number starts with a "P"; compare, e.g., page 13 of this catalogue.
- DASTAR : some single values are, at the moment, only given in the CINDU-catalogue, without a DASTAR-number, but with the word "DASTAR" in the reference column; compare, e.g., bottom of page 4 of this catalogue.

Anyone wishing to receive numerical data, needs only to order them by giving the DASTAR-number and a statement, whether printed listings, punched cards, magnetic tapes, or graphical plots are desired.

DASTAR-00364 2.VERSION ENTRY DATE 670912 LAST CHANGE 680304
 C EXPERIMENT 59-PR-141 (N,ALFA) AT 14.7 MEV, ANG DISTRIBUTION OF ALFAS
 C AUTHOR P.KULISIC, INSTITUTE RUDER BOSKOVIC, ZAGREB, YUGOSLAVIA, 1964
 C SEMICONDUCTOR TELESCOPIC DETECTOR.
 C TOTAL SIGMA (N,ALFA) = 3.0 +/- 0.5 MB BY INTEGRATING THE ANGULAR DISTRIBUTION,
 C = 0.9 MB BY EVAPORATION THEORY USING PARAMETERS
 C R-ZERO = 1.3FM, A = 7. /MEV AS DEDUCED FROM ALFA SPECTRUM.
 C DATA FROM PRIV COM KULISIC 1967 AND NP 54 17
 C 1.VARIABLE = ANGLE OF ALFAS, DEGREE, LAB
 C 2.VARIABLE = D-SIGMA/D-OMEGA (MB/SR), ALL ALFAS
 C 3.VARIABLE = +/- ERROR (MB/SR)
 C 4.VARIABLE = D-SIGMA/D-OMEGA (MB/SR), BELOW 19.7 MEV
 C 5.VARIABLE = +/- ERROR (MB/SR)
 C 6.VARIABLE = D-SIGMA/D-OMEGA (MB/SR), OVER 19.7 MEV
 C 7.VARIABLE = +/- ERROR (MB/SR)

DESCRIPTION OF FORMAT

00005 DATA LINES 07 VARIABLES/DATA LINE

FORMAT(F7.0,6F7.2)

0.	0.93	0.07	0.40	0.05	0.53	0.03	1
30.	0.45	0.05	0.24	0.03	0.21	0.03	2
60.	0.08	0.05	0.03	0.04	0.05	0.03	3
90.	0.02	0.07	-0.03	0.07	0.05	0.04	4
120.	0.09	0.28	0.08	0.25	0.01	0.15	5