

CINDU-8  
JAN 1969

# CINDU

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



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

## LAB CODES

LAB	LABORATORY	COUNTRY	LAB	LABORATORY	COUNTRY
ALD	ANRF ALDERMASTON	UK	ITF	INST. TEORET. I EKSP. FIZ. MOSKVA	CCP
AML	MELBOURNE, UNIVERSITY	AUL	JAD	INST. BADAN JADR. WARSAW, SWIERK	POL
ANL	ARGONNE NATIONAL LAB. ILLINOIS	USA	JAE	JAPAN AT EN RES INST. TOKAY	JAP
ARG	ARGENTINA	ARG	JNA	UNIVERSITÄT JENA	GFR
ARK	U. OF ARKANSAS, FAYETTEVILLE	USA	KAP	KNOLLS AT POWER LAB. SCHENECTOY	USA
AUA	AAEC RES. ESTABL. LUCAS HTS. NSW	AUL	KON	KONAN UNIVERSITY	JAP
AUH	ANDRAH UNIVERSITY, WALTHAM	IND	KUR	INST. ATOM. FN. KUPCHATOV, MOSKVA	CCP
DHU	HANARAS HINDU UNIV. VARANASI	IND	LAS	LOS ALAMOS SCI. LAB. NEW MEX	USA
DNL	BROOKHAVEN NATIONAL LAB	USA	LEU	FIZ. INST. LEDEDEVI (FIAN), MOSKVA	CCP
DNW	BATTELLE-NORTHWEST, RICHLAND	USA	LOK	LOCKHEED AIRCRAFT, CALIFORNIA	USA
DOL	BLOIGNY	ITY	LRL	LAWRENCE RAD. LAB. LIVERMORE	USA
DRK	RADIATION LAB BERKELEY, CALIF.	USA	LVN	UNIVERSITE LOUVAIN	BLG
RSP	SAD PAULD, IEA AND UNIVERSITY	BZL	MOL	CEN MOL	BLG
BUC	INST. DE FIZ. ATOMICA, BUCHAREST	ROM	MTR	PHILLIPS PETR. CO.-MTR, IDAHO	USA
CAI	A.E.E. CAIRO	UAR	MUA	MUSLIM UNIVERSITY, ALIGARH	IND
CCP	USSR	CCP	NAP	UNIVERSITY OF NAPOLI	ITY
CHF	REPUBLIC OF TAIWAN (FORMOSA)	CHF	NDC	ENEA N-DATA COMP. CENTRE, SACLAY, FR	FR
CHL	CHILE	CHL	NJS	NUKL. INST. JOZ. STEFAN, LUBLJANA	YUG
CNA	CEKHECE NUC. RES. CENTR. ISTAMBUL	TUR	NOR	NORWAY	NOR
COL	COLUMBIA UNIVERSITY, NEW YORK	USA	NZW	WELLINGTON, UNIVERSITY	NZL
CRC	CHALK RIVER, ONTARIO	CAN	ORL	OAK RIDGE NATIONAL LAB	USA
CSE	CASE INST OF TECH. CLEVELAND	USA	RRZ	INST. R. DOSKOVIC, ZAGREB	YUG
DAC	DACCA, UNIV. AT. ENERGY CENTRE	PAK	RI	RADTEV. INST. KHLOPIN, LENINGRAD	CCP
DEB	ATOMMAG KUTATO INT., DEBRECEN	HUN	RIO	RIO DE JANEIRO, C. BRAZ. PESQ. FIS.	BZL
DUR	JOINT INST. NUCL. RES. DUBNA	CCP	ROM	ROME, UNIVERSITY	ITY
FEI	FIZIKO-EN. INST., OBNINSK	CCP	RPI	RENSSELAER POLYTECH. INST.	USA
FTI	FIZ-TEKH INST DOFFE, LENINGRAD	CCP	SAC	C.E.N. SACLAY, SEINE ET OISE	FR
GEL	B.C.M.N. EURATOM, GEEL	BLG	SAF	SOUTH AFRICA	SAF
GIT	GEORGIA INST OF TECH. ATLANTA	USA	STL	STELLENBOSCH, UNIVERSITY	SAF
HAM	UNIVERSITÄT HAMBURG	GER	TAT	TATA INSTITUTE, BOMBAY	IND
HAN	HANFORD, BATTELLE NORTHWEST	USA	TRI	U OF TRIESTE	ITY
HAR	AERE, HARWELL	UK	TRM	BHABHA AT. RES. CENTRE, TROMBAY	IND
HFA	TECHNION HAIFA	ISL	TUD	TECHN. UNIV. DRESDEN + PIRNA	GER
HLS	UNIVERSITY HELSINKI	SF	UFT	UKRAINSK. FIZ-TEKH. INST. KHARKOV	CCP
IAE	INTERN. ATOMIC EN. AGENCY, WIEN	AUS	UMX	MEXICO, UNIV. NACIONAL AUTONOMA	MEX
IAN	BOGOTA, INST. DE ASUNTOS NUCL.	CLM	WIN	WINFRITH, A.E.E.	UK
IFU	INST. FIZ. UKRAINSKOI SSR, KIEV	CCP	WIS	U OF WISCONSIN, MADISON	USA
IRK	INST RADIUMFORSCHG + KERNPH., WIEN	AUS	WVA	WARSZAWA + SWIERK, U + INST BAD JAD, POL	POL

## REF CODES

REF	REFERENCE	COUNTRY	REF	REFERENCE	COUNTRY
54G	GENEVA I-1 IAEA CONF GENEVA, 1955	IAE	REP	REPORTS OF THE COMMISSION OF EUROPEAN ATOMIC ENERGY CENTRES	CCP
55M	GENEVA CONF MOSKVA 1955	CCP	IAE	IAEA CONF GENEVA, 1955	IAE
56K	ILV CONFERENCE FIV 1956	CCP	IAN	INTERNATIONAL CONFERENCE ON ATOMIC ENERGY	CCP
57C	COLUMBIA CONF. COLUMBIA U. 1957	USA	IAU	BULL. INT. UNION OF PURE AND APPLIED PHYSICS	CCP
58G	GENEVA 2-1 IAEA CONF GENEVA, 1958	IAE	IAU	BULL. INT. UNION OF PURE AND APPLIED PHYSICS	CCP
60V	FNNA SYMP PILE NEUTR RES, WIEN, IAE	IAE	IAE	IAEA CONF GENEVA, 1958	IAE
61R	I SYMP NEUTRON PHYS. AT HDI, USA	USA	IAE	IAEA CONF GENEVA, 1958	IAE
61S	ACLAY CONF SACLAY 1961	FR	IAN	INTERNATIONAL CONFERENCE ON ATOMIC ENERGY	CCP
62C	CHALKR SYMP. CHALKRIVER, ENEL, SCAT. CAN	CAN	INDUC	REPORTS OF THE INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS	CCP
62M	MEXICO 4TH INTERAM SYMPOS. 1962	MEX	IND4MG	REPORTS OF THE INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS	CCP
62P	ADUA CONFERENCE PADUA 1962	ITY	IND	INTERNATIONAL CONFERENCE ON ATOMIC ENERGY	CCP
63S	PAULO CONF SAO PAULO 1963	BZL	INH-	INTERNATIONAL CONFERENCE ON ATOMIC ENERGY	CCP
64U	MAY SYMPOS. BOMBAY, INEL, SCAT. IAE	IAE	ITE-	REPORTS OF THE INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS	CCP
64D	DUBNA CONF DUBNA 1964	CCP	Izv	IZVESTIJA AN. SSSR, SER. FIZ. MATEM. NAUK	CCP
64G	GENEVA 3-1 IAEA CONF GENEVA, 1964	IAE	JEP	JOURNAL OF PARTICLES	USA
64P	PARIS INT. CONF PARIS JULY 1964	FR	JLT	SOV. PHYS. JETP (JETP)	CCP
65A	ANTWERP INT. CONF ANTWERP JUL 1965	BLG	JNP	JOURNAL OF NUCLEAR ENERGY	CCP
65S	SALZB IAEA CONF SALZBURG 1965	IAE	JPJ	JOURNAL OF PHYSICS	CCP
66G	ATLND CONF NUCL PHYS. GATLINBURG, USA	USA	JPR	JOURNAL OF PHYSICS	CCP
66P	PARIS IAEA CONF PARIS OCT. 1966	IAE	KAPL-	KAUFMAN ATOMIC POWER LAB	USA
66SD	IEGO ANS CONF SAN DIEGO, FEB 1966	USA	KE	KERNENERGIE	CCP
67K	KHARKOV CONF KHARKOV JAN-FEB 1967	CCP	KFK-	REPORTS OF THE INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS	CCP
67T	TOKYO INT. CONFERENCE TOKYO, 1967	JAP	LA-	REPORTS OF THE INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS	CCP
68D	DUBNA ANGLD-SOV. SEMINAR, DUBNA	CCP	IADC-	REPORTS OF THE INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS	CCP
AAEC-	REPORT AUSTRALIAN AEC	AUL	MEF	MAGYAR FIZIKAI FOLYOIRAT	CCP
ADP	ANNALS OF PHYSICS	GER	KAT	NATURE	UK
AE	ATOMNAJA ENERGIJA	CCP	NC	NUOVO CIMENTO	ITY
AEC-	REPORT USAEC	USA	NCS	NUOVO CIMENTO, SUPPLEMENTS	ITY
AECD-	REPORT OF THE DISCONTINUED 1960	USA	NDP	NOTAS DE FISICA	BZL
AECD-	REPORT, AT. EN. CENTRE, DACCA, PAK	PAK	NEJTRON	NEUTRON PHYSICS	CCP
AFCL-	REPORT OF AECL CHALK RIVER	CAN	NIJS-	NUKLEONICNA INST. J. STEFAN, YUG	YUG
AEET-	REPORT, BHABHA AT. RES. CENTR. IND	IND	NIM	NUCLEAR INSTRUMENTS AND METHODS	CCP
AEW-	WINTERTH REPORTS	UK	NP	NUCL. PHYS.	CCP
AERE-	REPORT, AERE HARWELL	UK	NRDC-	REPORTS OF THE NATIONAL RESEARCH COUNCIL ON ATOMIC ENERGY	CCP
AHP	ACTA PHYS. ACAD. SCI. HUNG.	HUN	NSE	NUCL. SCI. ENG.	USA
AHSB-	UKAEA HEALTH & SAFETY BRNCH	UK	DNPL-	DAILY NEWS PAPER LETTERS	USA
AK	ATOMKI KÖZLEMENYEK	HUN	PEL-	PELINDABA, PHOTONIA, REPORTS OF THE INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS	CCP
AKS	ATOMKI KÖZLEMENYEK, SUPPL.	HUN	PL	PHYSICS LETTERS	CCP
ANL-	REPORT, ARGONNE NATL LAB	USA	PPA	PROCEEDINGS OF THE PAKISTAN ACADEMY OF SCIENCE	CCP
ANS	TRANS. AM. NUCL. SOC.	USA	PR	PHYS. REV.	USA
APP	ACTA PHYSICA POLONICA	POL	PHL	PHYS. REV. LETTERS	USA
AWRE-	ALDERMASTON REPORTS	UK	PRS	PROCEEDINGS (LONDON)	UK
BAP	BULL. AM. PHYS. SOC.	USA	PT	PHYSICS TODAY	USA
BNL-	REPORT BROOKHAVEN NATL LAB	USA	PTE	PHYSICS TODAY	USA
BDL	EVAL. DATA TAPE, BLOIGNY	ITY	HEA	HEAVY ELEMENTS	CCP
CCDN-NW	NEWSLETTER, ENEA NDC, SACLAY, FR	FR	HFT	HEAVY FIONEL	USA
CEA-	REPORT, OF C.E.N. SACLAY	FR	RMF	REVISTA MEXICANA DE FISICA	MEX
CEC	CIENCIA E CULTURA	BZL	RRP	REVUE ROUMAINE DE PHYSIQUE	ROM
CHP	CHINESE J. PHYS. (TAIWAN)	CHN	HST	REV. SCI. INSTR.	USA
CJP	CANADIAN J. OF PHYSICS	CAN	SCF	STUDII CERETARI DE FIZ.	ROM
CNAEM-	CEKHECE NUC. RES., ISTAMBUL, TUR	TUR	SCISRS	DATA TAPE BROOKHAVEN + SACLAY	USA
CONF	USAEC CONF PROCEEDINGS	USA	SJA	SOVIET JOURNAL OF ATOMIC ENERGY (AE)	USA
COO-	REPORT USAEC	USA	SND	SOVIET JOURNAL OF NUCLEAR PHYSICS (JNP)	USA
CR	COMPTES RENDUS	FR	SPD	SOVIET PHYSICS DOKLADY (DOK)	USA
CRGP-	REPORT, CHALK RIVER	CAN	SPN	SOVIET PHYSICS DOKLADY (DOK)	USA
CRNP-	REPORT, CHALK RIVER	CAN	TID-	REPORTS OF THE INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS	CCP
DASTAR-	DATA TAPE IAEA, VIENNA	IAE	UFZ	UKRAINSKIJ FIZ. ŽURNAL	CCP
DDK	DOKLADY AN. NAUK SSSR	CCP	UK-	UK EVALUATED DATA LIBRARY	UK
DUB-	REPORTS OF JINR, DUBNA	CCP	WASH-	USAEC REPORTS TO NCSAG	USA
EAF	ENERGIE ATOMIQUE (AE)	FR	YF	YADROVA FIZIKA	CCP
EANDC-	DOCUMENTS OF EANDC, PARIS	FR	YFI-	YADROVA FIZIKA	CCP
EON	EURONUCLEAR	UK	ZET	ZHURNAL EKSP. I TEOR. FIZ.	CCP
EUR-	EURATOM REPORTS, RCN	BLG	ZFK-	REPORTS OF THE INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS	CCP
FEI-	REPORT, FIZ-EN. INST OBNINSK	CCP	PPD	PRIVATE COMMUNICATION	IAE

CATALOGUE OF NUMERICAL NEUTRON DATA  
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CINDU - 8  
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- 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. For the first time, this issue indexes also some parts of evaluated data libraries held at the Nuclear Data Unit. Information on evaluated data can be found in the Annex, page 186.

CINDU 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 are stored at the IAEA Nuclear Data Unit, and each set of data is referred to by an index-number, e.g. DASTAR-00896. The bibliographic references for each experiment are blocked together with the relevant data index entry. All of the indexed data are available to anyone on request. Data should be ordered by their index 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-7 are marked with an asterisk following the entry date.

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## 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 data files, held at the IAEA, Vienna, and this present issue is current as of 15 Jan.1969.

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:

Abu El-Ela et al: DASTAR-00696, 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.

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.
5. CINDA, a world-wide index to the literature on microscopic neutron data, 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.

(Note: CINDA is an international and fairly complete literature index. - CINDU is a data index to the IAEA data files, which are, at present, by no means complete.)

COMPILATION ACTIVITIES OF THE IAEA NUCLEAR DATA UNIT

1. All scientists in Eastern Europe, Asia, Africa, South and Central America, Australia and New Zealand are invited to become affiliated with the IAEA neutron data center activity:  
by requesting the services of the IAEA Nuclear Data Unit, as well as by sending in the numerical results of their work. 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. Data stored at the center will, under normal circumstances, not be destroyed, even if they appear superseded.
  6. 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. The Nuclear Data Unit will also try to make available, on request, any other neutron data not included in this issue of CINDU.
  7. 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 57 of this catalogue. The documentation refers, in this case, to two articles published in the Journal of Nuclear Energy (JNE) and in Nuclear Instruments and Methods (NIM). The results of this experiment are published in graphical form only; this example illustrates how the data centre can make results rapidly available in numerical form, which often cannot conveniently be published.

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-PO006: 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 16 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-00696 2.VERSION ENTRY DATE 691218  
 C EXPERIMENT 30-ZN TOTAL CROSS-SECTION, NEUTRON ENERGY BETWEEN (.00228-.1069)EV  
 C AUTHORS ABU EL-ELA ET AL, ATOMIC ENERGY ESTABLISHMENT, CAIRO, U.A.R. 1967.  
 C SAMPLE. PREPARED FROM SPECTROSCOPICALLY PURE ZN METAL. MELTED AT 450 DEG C AND  
 C MACHINED INTO DISK SHAPE OF THICKNESS 16.63 G/SQ.CM, CORRESPONDING  
 C TO ABOUT 50 PER CENT TRANSMISSION FOR 0.025 EV NEUTRONS.  
 C IMPURITY. SPECTROSCOPIC ANALYSIS ON ZINC YIELDED FOLLOWING RESULTS.  
 C SI=5 PPM, BI=2 PPM, FE=1 PPM, B=1 PPM, CU=2 PPM, CA=2 PPM, AND MN=2 PPM.  
 C METHOD. TIME-OF-FLIGHT SPECTROMETER USED.  
 C RESULTS. AT ENERGIES BETWEEN 0.05 EV AND 0.4 EV EXPRESSION OBTAINED FOR TOTAL  
 C CROSS-SECTION WAS  $(3.79 \pm 0.12) + (0.13 \pm 0.03) \text{SQRT}(E)$ .  
 C TOTAL CROSS-SECTION AT 0.025 EV WAS DEDUCED AS  $(4.61 \pm 0.31)$  BARNS, AND  
 C THE POTENTIAL SCATTERING CROSS-SECTION WAS DEDUCED AS  $(3.79 \pm 0.12)$   
 C BARNS.  
 C ERRORS. THE STATISTICAL ERRORS ON THE TOTAL CROSS SECTION ARE GIVEN BELOW IN  
 C TABLE, THESE ERRORS VARY BETWEEN 2 TO 9 PER CENT.  
 C DATA FROM PRIVATE COMMUNICATION FROM HAMOUDA. JULY 1968.  
 C 1.VARIABLE = NEUTRON ENERGY IN EV.  
 C 2.VARIABLE = NEUTRON WAVELENGTH IN ANGSTROMS.  
 C 3.VARIABLE = TOTAL CROSS-SECTION IN BARNS.  
 C 4.VARIABLE = STATISTICAL ERROR ON VARIABLE 3 IN BARNS.

## DESCRIPTION OF FORMAT

00112 DATA LINES 04 VARIABLES/DATA LINE

FORMAT(F10.5, F10.3, 2F10.2)

0.1069	0.875	4.01	0.11	1
0.0964	0.921	4.00	0.10	2
0.0875	0.967	4.00	0.10	3
0.0797	1.014	4.02		4
0.0729	1.060	4.10	0.10	5
0.0661	1.114	4.10		6
0.0617	1.152	4.20	0.09	7
0.0571	1.198	4.10		8
0.0529	1.244	4.10		9
0.0492	1.289	4.20	0.10	10
0.0459	1.336	4.00		11

(Example only.  
 The data table  
 is incomplete.)