INTERNATIONAL ATOMIC ENERGY AGENCY
NUCLEAR DATA SERVICES
DOCUMENTATION SERIES OF THE IAEA NUCLEAR DATA SECTION

IAEA-NDS-66
Rev. 0

EXFOR-INDEX

Index to EXFOR Neutron Data
1985

Summary Documentation

Abstract

This document summarizes the contents and documentation of the Index File to EXFOR Neutron Data (X4INDEX). This library is a sequential file of relevant index records extracted from an online Data Index data base at NDS. The data base is updated regularly, and each copy of the EXFOR Neutron Data Index is extracted directly from the current data base file. The second file of the EXFOR Neutron Data Index library is a copy of the relevant EXFOR dictionaries. This file is copied directly from the EXFOR Dictionary master file.

The entire Index or selective retrievals from it can be obtained on magnetic tape free of charge from the IAEA Nuclehr Data Section.

M.M.Seits, H.D.Lemmel
June 1985

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EXFOR-INDEX

Index to EXFOR Data
1985

GENERAL

The purpose of this Index file is to give the data user an idea of what and how many data for a given reaction exist in the EXFOR master file. The numerical data tables themselves together with explanatory textual information can then be requested and retrieved either by specifying the EXFOR accession numbers or by specifying any other suitable parameters (e.g. REACTION and LAB, etc.).

The EXFOR master file contains:

- experimental neutron reaction data with a high level of completeness;
- some evaluated neutron reaction data, only few data incidentally selected;
- photonuclear reaction data, incomplete;
- charged-particle reaction data to a gradually increasing completeness;
- some heavy-ion reaction data for incident particles heavier than alpha-particles.

CONTENTS OF THE EXFOR-INDEX FILE

When a data user requests an EXFOR data retrieval, this data retrieval will always be accompanied by an EXFOR Index file (as listing or on tape). Other data users may wish to receive only an EXFOR Index file. The index records to EXFOR data are extracted from an online data base. The records are then sorted and edited. The index data base is updated regularly, so each copy of the EXFOR data index file is an up to version.

The EXFOR Index file is sorted by:

Target-nucleus
Reaction
Quantity
EXFOR Accession number

The second file of the tape is a copy of the relevant EXFOR dictionaries (used to interpret the coded information used in the index). It is copied directly from the EXFOR Dictionary Master file each time the tape is created.

The complete EXFOR Data Index file currently contains about 68,000 index records. Each record is 132 characters long. The dictionaries consist of aproximately 4,200 records 66 characters long.

DOCUMENTATION

A short summary of the EXFOR System is given in the document IAEA-NDS-1, "Short Guide to EXFOR". The document IAEA-NDS-2 is a complete listing of the EXFOR Dictionaries.

FORMAT

For the details of the magnetic tape specifications, please see the "Tape Specification Sheet" attached to the tape itself. Unless requested otherwise, the tape specifications are:

Tracks:	9 track
Density:	1600 bpi
Code:	EBCDIC
Labels:	NL
Blocking Factor:	20

1. FILE 1 - EXFOR Data Index Records

Field	Length	Position	Contents	NOTES (see page 3)
1	50	1	REACTION STRING	1
2	1	51	blank	
3	2	52,53	CONNECTOR, POSITION	2
4	1	54	blank	
5	16	55	ENERGY RANGE	3
6	1	71	blank	
7	7	72	LAB	4
8	1	79	blank	
9	2	80	YEAR of EXPERIMENT	
10	1	82	blank	
11	10	83	AUTHOR	5
12	1	93	blank	
13	20	94	REFERENCE	6
14	1	114	blank	
15	9	115	EXFOR ACCESSION NUMBER	
16	1	124	blank	
17	2	125	VERSION YEAR	7
18	1	127	blank	
19	5	128	# of DATA LINES (unpacked numeric)	

Record length = 132, block size = 2640.

2. FILE 2 - EXFOR Dictionaries

File 2 is a sequential file of the following EXFOR dictionaries including comments, codes, and their explanation:

Dictionary 3 - Institutes (LAB)
Dictionary 4 - Type of Reference (1st character of REFERENCE field)
Dictionary 5 - Journals
Dictionary 6 - Reports
Dictionary 7 - Books and Conferences
Dictionary 34 - Modifier
Dictionary 36 - Quantities (Reaction unit subfields)

Record length = 66, block size = 1320.

NOTES

1 REACTION STRING consists of:
- target-nucleus
- incident projectiles in sort order:
  - N = Neutrons
  - 0 = no incident projectile (e.g. spont. fission)
  - G = Photons
  - P = Protons
  - D = Deuterons
  - He3 = HE-3 Particles
  - A = Alpha particles
  - Z-El-A = heavy ions
- outgoing particle(s) or process
  - e.g.: F = Fission
  - NON = nonelastic
  - THS = thermal scattering
- product nucleus (may be omitted)
- "Quantity" (see Dictionary 36)
  - e.g.: SIG = sigma, cross section
  - DA = angular distribution

2 CONNECTOR, POSITION
- given when the REACTION STRING is part of a SUM, RATIO, PRODUCT, etc.:
  - e.g.: /1 = data are given as a ratio in which the REACTION STRING specified stands in the first position

3 ENERGY RANGE
- energy range in eV of the Incident Projectile

4 LAB (see Dictionary 3)

5 AUTHOR
- name is name of first or only Author
- "+" after name means "et.al."

6 REFERENCE
- Reference is in CINDA format (see Dictionaries 4 - 7)

7 VERSION YEAR
- It should be realized that EXFOR data are frequently updated, E.G. when the author re-analyzes his data with improved standards. Therefore, an important function of the EXFOR-Index may be that a data user can check whether the EXFOR data he is using are in their most recent version. Note that revisions of EXFOR data area usually unpublished.

SAMPLE listing of EXFOR Data Index (File 1 on tape)

Reaction String — ENERGY RANGE — LAB — YEAR OF PUBLICATION — AUTHOR — REFERENCE — EXFOR ACCESSION — VERSION (YEAR) — # OF LINES

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059-PR-141(N,EL)59-PR-141,,SIG                  [illegible] 1.57+06 [illegible] 69 MA[illegible]  J,NP,A124,111,69      21[illegible].011 77   8
059-PR-141(N,EL)59-PR-141,,SIG                  1.00+00          4ZZZDUB 77 ALFIMENKOV  J,YF,25,(5),930,77[illegible] 40475.004 78   1
059-PR-141(N,EL)59-PR-141,[illegible],SIG       1.00+00          4ZZZDUB 77 ALFIMENKOV  J,YF,25,(5),930,770[illegible] 40475.003 78   1
059-PR-141(N,G),,WID,,AV                        1.00+04 2.00+05 1USAORL 61 GIBBONS+    J,PR,122,182,61       11329.093 83   1
059-PR-141(N,G),,WID                            8.40+01 1.43+03 2FR SAC 69 MORGENSTIER J,NP/A,123,561,6901   20084.023 77  19
059-PR-141(N,G),,WID,,AV                        0.00+00 6.00+03 2FR SAC 69 MORGENSTIER J,NP/A,123,561,6901   20084.024 77   1
059-PR-141(N,G),,WID                         /2 2.60+03 1.33+04 3AULAUA 79 TAYLOR+     J,AUJ,32,551,7912     30490.002 83 210
059-PR-141(N,G),,WID,,2G                        2.60+03 1.33+04 3AULAUA 79 TAYLOR+     J,AUJ,32,551,7912     30490.002 83 210
059-PR-141(N,G),,WID,,AV                        0.00+00 2.00+05 3AULAUA 79 TAYLOR+     J,AUJ,32,551,7912     30490.003 83   2
059-PR-141(N,G),,WID                            8.51+01 9.42+02 4ZZZDUB 64 WANG NAI-Y  J,ZET,47,43,64        80309.003 73  16
059-PR-141(N,G)59-PR-142,,DE                    1.41+07         3YUGNJS 75 BUDNAR+     R,INDC(YUG)-5,7701    30364.006 80  24
059-PR-141(N,G)59-PR-142,,DE                    1.41+07         3YUGNJS 79 BUDNAR+     R,INDC(YUG)-6,7912    30532.045 80  24

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090-TH-232(N,EL)90-TH-232,,DA                   2.00+06         4CCPCCP 61 ALEKSANDRO  J,ZET,40,1878,61      80240.003 72  24
090-TH-232(N,EL)90-TH-232,,DA                   3.10+06         4CCPCCP 61 POPOV       B,SOV.FR.NF.,,224,61  80327.002 72  16
090-TH-232(N,EL)90-TH-232,,POL/DA               8.69+05         1USAANL 72 COX+        R,ANL-7935,7206       10332.048 83   9
090-TH-232(N,EL)90-TH-232,,RAD                  0.00+00 7.00+02 2FR SAC 70 RIBON       W,RIBON,7001          20149.062 73   1
090-TH-232(N,EL)90-TH-232,,SIG                  8.73+05         1USAANL 72 COX+        R,ANL-7935,7206       10332.134 83   1
090-TH-232(N,EL)90-TH-232,,SIG,,MXW             2.53-02         1USARET 74 GREEN+      J,NSE,54,18,7405      10388.002 83   1
090-TH-232(N,EL)90-TH-232,,SIG                  1.44+00         1USAORL 52 RAYBURN+    J,NP,61,381,65        11026.033 83   1
090-TH-232(N,EL)90-TH-232,,SIG,,MXW             2.53-02         1USAANL 51 HIBDON+     R,ANL-4680,5,51       11434.004 82   1
090-TH-232(N,EL)90-TH-232,,SIG                  1.00+06         1USAWIS 54 WALT+       J,PR,93,1062,5403     11637.003 83   1
090-TH-232(N,EL)90-TH-232,,SIG                  1.52+07         1USAVIR 62 HUDSON JR+  J,PR,128,1271,6211    12130.005 82   1
090-TH-232(N,EL)90-TH-232,,SIG                  5.70+05 1.50+06 1USAANL 62 SMITH       J,PR,126,718,62       12277.004 84   6
090-TH-232(N,EL)90-TH-232,,SIG               +1 9.30+05 3.55+06 1USAANL 82 SMITH+      C,82ANTWER,,39,8209   12742.002 83   6
090-TH-232(N,EL)90-TH-232,,SIG                  2.00+06 7.00+06 2UK ALD 65 BATCHELOR+  J,NP,65,236,6503      21019.004 79   4
090-TH-232(N,EL)90-TH-232,,SIG                  5.50+05         2JPNTOH 81 IWASAKI+    W,IWASAKI,810707      21767.008 84   1
090-TH-232(N,EL)90-TH-232,,SIG               +1 2.40+06 5.70+06 2JPNTOH 81 IWASAKI+    W,IWASAKI,810707      21767.009 84   2
090-TH-232(N,EL)90-TH-232,,SIG                  7.00+05 3.40+06 2FR BRC 82 HAOUAT+     J,NSE,81,(4),491,820  21782.008 83   4
090-TH-232(N,EL)90-TH-232,,SIG               +1 4.00+06 1.20+07 4CCPCCP 62 KOZLOVA+    J,AE,13,62,62         40649.002 84   9
090-TH-232(N,EL)90-TH-232,,SIG                  2.00+06         4CCPFEI 65 KAZAKOVA+   C,65ANTWERP,,576(200  40706.002 84   1
090-TH-232(N,EL)90-TH-232,,SIG               +1 4.00+06 9.00+06 4CCPCCP 62 KOZLOVA+    J,AE,13,62,62         80057.002 71   6
090-TH-232(N,EL)90-TH-232,,SIG               +1 1.00+07 1.20+07 4CCPCCP 62 KOZLOVA+    J,AE,13,62,62         80057.003 71   3
090-TH-232(N,EL)90-TH-232,,SIG                  2.00+06         4CCPFEI 65 KASAKOVA+   C,65ANTWERP,,575(200  80114.002 71   1
090-TH-232(N,EL)90-TH-232,,SIG                  3.10+06         4CCPCCP 61 POPOV       B,SFN,224,61          80324.002 72   1
090-TH-232(N,EL)90-TH-232,POT,RAD               2.00+03         4CCPIJI 75 VERTEBNYJ+  C,75KIEV,3,151,7506   40460.017 78   1
090-TH-232(N,EL)90-TH-232,POT,SIG               5.20-01 5.40+01 1USABNL 58 SETH+       J,PR,110,692,58       11789.021 77   1
090-TH-232(N,EL)90-TH-232,POT,SIG,,SFA          2.00+03         4CCPIJI 75 VERTEBNYJ+  C,75KIEV,3,151,7506   40460.015 78   1
090-TH-232(N,F),,AKE,LF,FIS                     1.60+06 5.20+06 1CANALA 82 LAM+        J,PR/C,28,1212,8210   12843.004 84   3
090-TH-232(N,F),,AKE,HF,FIS                     1.60+06 5.20+06 1CANALA 82 LAM+        J,PR/C,28,1212,8210   12843.005 84   3
090-TH-232(N,F),,AKE,FF,FIS                     1.60+06 5.20+06 1CANALA 82 LAM+        J,PR/C,28,1212,8210   12843.006 84   3
090-TH-232(N,F),,AKE,FF                         1.35+06 5.30+06 2FR BRC 80 TROCHON+    W,TROCHON,800616      21310.002 80  13
090-TH-232(N,F),,AKE,FF,MXW                     2.53-02         2FR ILL 80 D'HONDT+    J,ANE,7,6,367,80      21635.004 80   1

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092-U -238(N,F),DL/PAR,DE,N,,EVAL               2.00+06         3ISLSOR 77 SAFHIR+     J,NSE,62,660,7704     V0017.008 80  30
092-U -238(N,F),DL/PAR,DE,N,,EVAL               2.00+06         3ISLSOR 77 SAFHIR+     J,NSE,62,660,7704     V0017.008 80  30
092-U -238(N,F),DL/PAR,DE,N,,EVAL               2.00+06         3ISLSOR 77 SAFHIR+     J,NSE,62,660,7704     V0017.008 80  30
092-U -238(N,F),DL/PAR,DE,N,,EVAL               2.00+06         3ISLSOR 77 SAFHIR+     J,NSE,62,660,7704     V0017.008 80  30
092-U -238(N,F),DL/PAR,DE,N,,EVAL               2.00+06         3ISLSOR 77 SAFHIR+     J,NSE,62,660,7704     V0017.008 80  30
092-U -238(N,F),DL/PAR,DE,N,,EVAL               1.47+07         3ISLSOR 77 SAFHIR+     J,NSE,62,660,7704     V0017.011 80  30
092-U -238(N,F),DL/PAR,DE,N,,EVAL               1.47+07         3ISLSOR 77 SAFHIR+     J,NSE,62,660,7704     V0017.011 80  30
092-U -238(N,F),DL/PAR,DE,N,,EVAL               1.47+07         3ISLSOR 77 SAFHIR+     J,NSE,62,660,7704     V0017.011 80  30
092-U -238(N,F),DL/PAR,DE,N,,EVAL               1.47+07         3ISLSOR 77 SAFHIR+     J,NSE,62,660,7704     V0017.011 80  30
092-U -238(N,F),DL/PAR,DE,N,,EVAL               1.47+07         3ISLSOR 77 SAFHIR+     J,NSE,62,660,7704     V0017.011 80  30
092-U -238(N,F),DL/PAR,DE,N,,EVAL               1.47+07         3ISLSOR 77 SAFHIR+     J,NSE,62,660,7704     V0017.011 80  30
092-U -238(N,F),DL/PAR,DE,N,,EVAL               1.47+07         3ISLSOR 77 SAFHIR+     J,NSE,62,660,7704     V0017.011 80  30
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