WP 2004-6

CINDA2001

MANUAL

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based on June 2003 NRDC meeting decisions

Revision 2, March 2003
to correct HIERARCHY and REFERENCE code confusion

CINDA Bibliographic System

HISTORY

CINDA2001 was designed to replace the CINDA database which was originally designed in 1958[1] as a Card Index to Neutron Data. CINDA was adopted in the 1970's by the four Neutron Data Centers as an international index to the neutron data; the compilation scheme remained essentially unchanged until 1998.

In the meantime, the Nuclear Reaction Data Network had evolved from the original four centers to a group of thirteen centers involved in the compilation of nuclear reaction data for incident charged particles and photons, in addition to neutrons. The need for an index that would allow the inclusion of all reaction data, and the need to update the format for the year 2000 lead to a complete redesign of the bibliographic system.

The new system is more compatible with EXFOR/CSISRS, and has adopted many of the same the codes used in this database, thereby eliminating the need for users of nuclear reaction data to learn different sets of notation when accessing the bibliographic and data files.

***So the knowledge of EXFOR coding system is imperative*.**

INTRODUCTION

CINDA2001 is a computerized bibliographic file containing references to information on nuclear reactions. Included are references to measurements, calculations, evaluations, and reviews of nuclear reaction and other related data. In the case of experimental or evaluated data, references to the databases where the actual values may be obtained are also included.

Identical copies of this database are maintained by the four core centers in the Nuclear Data Center Network.[2] These master files are updated periodically and exchanged among the centers. Retrievals from CINDA2001, as well as the experimental and evaluated databases, are available through the Internet using World Wide Web or by direct access using TCP/IP's TELNET command.[3]

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[1] CINDA was designed by Herbert Goldstein, a professor in the Department Of Applied Physics and Engineering at Columbia University, see Nuclear Development Corporation of America report NDA 2-80 (1958).

[2] These core centers are: the US National Nuclear Data Center, the NEA Data Bank, the IAEA Nuclear Data Section, and the Russian Nuclear Data Center at Obninsk. See Appendix A for complete information on the Nuclear Reaction Data Centers.

[3] See Appendix A for access to your nearest data center.

The information in the CINDA2001 Database is obtained from scanning the available literature, both published and unpublished. Coverage is "complete" for neutron data from 1935 to the present. Coverage for charged-particle data is nearly complete ***from*** 1980 to the present, and less complete before 1980. Coverage for photon-induced data is taken from Photonuclear Data[4] which covers the period 1976 to the present.

This manual is intended to be a complete guide to the indexing of information in the CINDA2001 system.

CINDA2001 EXCHANGE FORMAT

The CINDA2001 exchange file consists of a series of 132-character record plus a header record which gives information about the attached file. The format of the header record is:

Columns	Content	Use
1-5	ID	CINDA
6	*(blank)*	
7-15	Type of file	READER or EXCHANGE; left-adjusted
16-22	Exchange number	Area code, number of exchange for area; right-adjusted.
23-33	Date of exchange	8-digit right-adjusted integer: year, month, day (YYYYMMDD)
34-44	Number of records on file	Right-adjusted integer

Files transmitted will be either exchange files or reader files. The format of these files is the same, but the content will differ slightly; the differences are noted under the sections on the appropriate fields.

Exchange files consist of records produced for transmitting entries from a center's own area of responsibility.

Reader files contain records produced by the transmitting center for an area outside its responsibility and transmitted to the responsible center for addition to its database. After the update of its database, the records will be transmitted by the responsible center to all other centers.

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[4] V. V. Varlamov, V. V. Sapuchenko, M. E. Stepanov, **Photonuclear Data 1976-1995**, Photonuclear Experimental Data Center, Moscow University (1996).

The fields given in the CINDA2001 exchange format are as follows.

Columns	**Contents**	**Formats**	**Example**
1	Operation code	A1	As in CINDA
2-8	Target Nucleus	2I3,A1	Target Z, A, isomeric state `(ZZZAAAM)`
9-23	Reaction	A15	Generally, EXFOR REACTION SF2-SF3
24-26	Quantity	A3	From DANIEL Dictionary 13.
27-33	Institute	I1,A6	EXFOR code with area code
34-38	Block #	A5	Area code, followed by center assigned block #
39-40	Sequence #	I2	Sequence within block
41	Work type	A1	As in CINDA[5]
42	Reader code	A1	At discretion of center (blanks allowed)[6]
43-56	Energy range	2(E7.1)	Minimum, maximum energy (`±n.n±ee)`
57	Hierarchy code	I1	Hierarchy for references (0-6,8,9)
58-86	Reference and date	A23,I6	Type: as in CINDA (A1), Reference code: as in EXFOR (A22), Date: year and month (`YYYYMM`) Exception for hierarchy 8 (nuclide list) and hierarchy 9 (additional laboratory list).
87-124	Comment	A38	As in CINDA
125-132	Modification date	I8	Date: year/month/day (`YYYYMMDD`)

Updates to the formats must be agreed upon by the four core centers.

Any codes to be used in CINDA2001 are included in dictionaries contained in the DANIEL dictionary database. Updates to the dictionaries must be submitted before any code not given in these dictionaries may be used on a CINDA2001 exchange file.

Details for the coding and content of each of the above fields are given on the following pages.

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[5] With the exception that the mixed mode codes will be eliminated. For example, entries for theoretical calculations will be separated from experimental data.

[6] That is, centers may choose not to use a reader code.

OPERATION CODE (Column 1)

The operation code is a signal to the database update code as to what operation must be performed. The following list contains the legal operation code and their use.

Code	Meaning	Exchange Use	Reader Use
A	Add record	Block number and sequence number must be specified	Block number may be specified; sequence number must be blank.
D	Delete record	Block number and sequence number must be specified	Block number and sequence number must be specified.
M	Modify record	Block number and sequence number must be specified	Block number and sequence number must be specified

The remainder of the record must be complete for both reader and exchange format.

TARGET NUCLEUS (Columns 2-8)

The target nucleus is given as 2 three-digit integers (Z and A) , both right-adjusted in their field, plus an isomeric state code. All legal Z, A codes are found in DANIEL Dictionary 27. The isomeric state code is blank for a nucleus in the ground state, and consists of the metastable state number for metastable states.

For compound nucleus properties, *e.g.*, resonance parameters, the nucleus entered is the target for the reaction(s) analyzed.

For a theoretical work giving systematic trends over many nuclei, the code MNY may be used in the A field; use Z equal to zero. The code MNY may be used either in place of, or in addition to, separate entries for the individual nuclei.

Naturally occurring elements

For naturally occurring elements that contain a mixture of isotopes, a zero is entered in the A-number field. For monoisotopic elements, the Z and A of the isotope are given. For nearly monisotopic elements, *i.e.*, for elements where the principal isotope is more than 99% of the natural isotopic mixture, the Z,A of that isotope may be given if the contribution from other isotopes to the reaction given is negligible.

Compounds and Mixtures

For compounds and mixtures, a 3-character compound code is given instead of the A number and is left adjusted in the field. Single element compounds, *e.g.*, molecular hydrogen, should not be coded as compounds. If information is deduced for a constituent element of a compound or mixture, it should be entered under that element.

The general code zzzCMP, where zzz is the major component of the compound, may be used if the compound is not given specifically in the dictionary. The name of the compound should be given in the comment. If more than one element may be considered a major component, choose the element with the highest Z number.

For data given for mixed fission products, *i.e.*, an aggregate of those fission products produced in a given fission reaction, the code FPR is given in place of the A value; use Z equal to zero.

REACTION (Columns 9-23)

The code for reaction is given as two fields: incident and outgoing. For complete evaluations covering many reactions, and given over a defined energy range, this field may be left blank.

The incident field contains one of the following:

1. A particle code from DANIEL Dictionary 33 which contains a non-blank character in the third position of the Allowed Subfield field, *e.g.*, P or HE3.;

2. A chemical symbol and A-number (SSAAAM) from DANIEL Dictionary 27 which contains a non-blank character in the third position of the Nuclide Uses field; for a nucleus in a metastable state the code is followed by an M, *e.g.*, CL 35 or AM242M.

The outgoing field contains one of the following.

1. A particle code from DANIEL Dictionary 33 which contains a non-blank character in the fourth position of the Allowed Subfield field, *e.g.*, P or HE3;

2. A nuclide code, *i.e.*, chemical symbol and A-number (SSAAA) taken from DANIEL Dictionary 27 which contains a non-blank character in the fourth position of the Nuclide Uses field; for a nuclide in the metastable state the code is followed by the code M, *e.g.*, CL 35 or AM242M;

3. A process code taken from DANIEL Dictionary 30, *e.g.*, TOT or EL;

4. A combination of the above with the codes separated by a "+".
   The order of codes is: particles ordered from lightest to heaviest,[7] followed by nuclide codes ordered from lightest to heaviest, followed by process codes in alphabetical order. The

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[7] Lightest to heaviest is defined as in order of lightest Z, then in order of A.

exception to this rule is: when the order in which the reaction proceeds is given explicitly, the codes are given in that order.

5. For complex reactions with many outgoing particles, the code CMPLX may be used in this field in place of all other codes.

QUANTITY (Columns 24-26)

The legal quantity codes are given in DANIEL Dictionary 13.
<u>These codes are listed in Appendix D</u>
For complete evaluations, covering many reactions and quantities, this filed contains the code EVL.

INSTITUTE (Columns 27-33)

The institute is given as a single integer for the area code followed by the six-character code consisting of a country code followed by an institute code. These codes are found in DANIEL Dictionary 3, CINDA Code field.

If more than one institute is involved in the work, the main institute is given. The main institute is defined as the institute at which the principal investigator resides, or the institute at which the work was done. Links to the other institutes are given on Institute Cross Reference Records (work type 9, see Work Type). An entry is made for each institute containing at least one reference.

BLOCK NUMBER (Columns 34-38)

The block number consists of the area code for the responsible center, followed by a four digit block number, *e.g.*, L1982. The area codes to be used are those assigned for EXFOR, e.g. area 1 is USA and Canada, area 2 is OECD member countries (excluding USA and Canada) etc.

The block number is assigned only by the center responsible for the entry.

SEQUENCE NUMBER (Columns 39-40)

The Sequence Number is a 2-digit, right-adjusted integer denoting the sequence within a block. It is assigned ***only*** by the center responsible for the entry.

WORK TYPE (Column 41)

The one-character Work Type code gives the type of work referenced, *e.g.*, experimental, evaluated. For a reference containing more than one type of work, a separate block should be entered for each type, for example, an experimental work in which extensive[8] model calculations were done.

READER CODE (Column 42)

A one-character Reader Code may be used, at the discretion of the entering center, to identify the compiler of the entry. This field may be left blank. A list of current and formerly used Reader Codes is given in Appendix B.

ENERGY RANGE (Columns 43-56)

The energy range field consists of two floating-point numbers (2E7.1) which give the minimum and maximum energies for the data referenced. If the data is presented only at one energy, it is given in the first field; the second field is blank. If an upper limit only is known, it is given in the second field; the first field is blank.

If only the approximate range is known, only the exponents are entered.

A four-character code is used to define the energy for spectrum-averaged values. A list of all legal codes is given in DANIEL Dictionary 38, e.g. MAXW, SPON, THR. ***(Where is this Dictionary?)***

If the reference covers two or more distinct energy ranges that may be viewed a separate experiments or calculations, separate entries should be made. *Example*: a measurement at thermal energy of Maxwellian-averaged cross section and a separate measurement over the energy range 5 eV to 6 keV.

If no information on the energy is given, the code NDG (no data given) is used.

For quantities for which an incident energy is meaningless, *i.e.*, nuclear quantities, ***spontaneous fission et al.*** both fields are left blank.

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[8] By extensive is meant that each work is extensive enough to warrant publication on its own. For example, a comparison of measured angular distributions with optical model calculations is not regarded as fulfilling this criterion. This comparison should be noted in the comment for the experimental data.

HIERARCHY CODE (Column 57)

The one-digit Hierarchy code is used to distinguish between different types of records, or to denote the importance of a reference. Valid hierarchy codes are defined in the following table.

Code	Use
1	Main publication. Assigned only to a publication known to be the definitive publication.
2	Published reference (journal or conference proceeding).
3	Other major reference, such as, complete laboratory report or a thesis.
4	Translation for reference with hierarchy 1-3.
5	Minor reference, such as, a progress report, a meeting abstract, or a private communication.
6	EXFOR or Evaluated Data index entry. A reference to an entry in a data library which gives the numerical data referenced in the block.
8	A reaction product record. Gives, in the Reference and Comments fields, a list of the reaction products measured in a nuclide production or fission product yield measurement. The products are given in the format `ZZ-SYM-AAAM`. The energy field is blank (see Reference).
9	An institute cross-reference record. Gives, in the Reference and Comments fields, a cross-reference for other institutes involved in the producing the data. The energy field is blank (see Reference).
0	EXFOR data index line where accession number is not yet assigned, i.e. EXFOR compilation of the work is still in progress.

1. Hierarchy codes `0` and/or `6` for EXFOR data:

Column 57	`0` or `6`
Columns 58-64	`4,EXFOR`
Columns 65-69	EXFOR Accession number (e.g. `11754`) or `00000`, if unassigned, when hierarchy code = 0
Column 70	full stop (.)
Column 71-73	EXFOR Sub-accession number, e.g. `002`, `045`, *etc.* or `000`, if unassigned, when hierarchy code = 0

REFERENCE (Columns 58-86)

The reference consists of three fields: reference type, reference code, and reference date. The format of the reference field depends on the reference type. The exceptions are:

1. For Hierarchy 8 records, the energy field is blank with the comma separated list of nuclides starting in column 58 of the Reference field and continuing through the Comments field as required upto column 124, e.g. `23-V-66, 24-CR-68/69/70` where different masses for the same element are separated by a forward slash "/" (see also the example at the end of

this manual). Multiple lines can be used.

2. For Hierarchy 9 records, the energy field is left blank with the comma separated list of laboratories starting in column 58 of the Reference field and continuing through the Comments field as required upto column 124, e.g. `1USABNL, 1USALAS, 3INDTAT` (see also the example at the end of this manual). Multiple lines can be used.

Reference type (Column 58)

The Reference Type consists of a one-character code taken from DANIEL Dictionary 4.

Reference Code (Column 59-80)

In general, references are coded as for EXFOR and use the same dictionaries and codes. See the EXFOR Manual for coding rules, and DANIEL Dictionaries 5-7 for document codes.

1. Reference code `4` for EXFOR data:

columns 60-64	`EXFOR`
columns 65-69	EXFOR Accession number (e.g. `11754`) or `00000`, if unassigned, when hierarchy code = 0
column 70	full stop (.)
column 71-73	EXFOR Sub-accession number or `000`, if unassigned, when hierarchy code = 0

e.g. `4,EXFOR12345.123` (for hierarchy code = `6`) or `4,EXFOR00000.000` (for hierarchy code = `0`).

2. Reference code `3` for Evaluated data libraries:

columns 60-65	evaluated file name (see DANIEL Dictionary 44)
columns 66-80	version number, data set or material number,

e.g. `3,JENDL-3.2 4725` where in this example `4725` is the material number of the coded target `47-AG-107`.

Reference Date (Column 81-86)

The reference date is given as a 6-digit integer: 4-digit year, 2 digit month (YYYYMM). If the month is not known, it may be omitted.

COMMENTS (Columns 87-124)

Comments for reference records should start with the first author's last name, terminated with a full stop (.) for a single author or a plus sign (+) for multiple authors. If no author is known, column 87 should contain a full stop.

The author's name is followed by additional, abbreviated information about the work.

The comment should contain information on whether and how the data is presented in the reference as in the previous CINDA.

Examples: NDG (no data given)
GRPH (graphs)
TBL (table)

For allowable character set and translation of Cyrillic characters, see EXFOR Manual, Chapter 1.

Comments for the data index lines should contain:
for EXFOR, the number of data lines, and type of data;
for evaluations, the evaluator.

An exception to the above is the Comments section of hierarchy 8 and 9 records which may contain relevant laboratory codes or nuclide references (see Reference section).

MODIFICATION DATE (Columns 125-132)

The modification date is assigned by the compiler as the date of compilation. This may be updated by the compiling center as the date at which the entry is entered into the database.

The modification date is given as an 8-digit integer: 4-digit year, 2 digit month, 2 digit day (YYYYMMDD).

Appendix A

Nuclear Reaction Data Centers

This appendix contains a list of the members of the Nuclear Data Center Network, along with information on how to contact them. Also list are the entry series for which each of the data centers is responsible.

Principal Centers and their services areas.[9]

United States and Canada	
National Nuclear Data Center, Bldg. 197D Brookhaven National Laboratory Upton, NY, 11973-5000 U.S.A.	Center codes: 1, C, L, P, T Telephone: +1 631-344-2902 Fax: +1 631-344-2806 Email: nndc@bnl.gov or nndc*nn*@bnl.gov[10] www.nndc.bnl.gov
O. E. C. D. Nuclear Energy Agency Member Countries	
NEA Data Bank 12, boulevard des Iles 92130 Issy-les-Moulineaux, FRANCE	Center codes: 2, O Telephone: +33 (1) 4524 1071 Fax: +33 (1) 4524 1110 Email:nea@nea.fr or *name*@nea.fr www.nea.fr
Countries of the former Soviet Union	
Federal Research Center IPPE Centr Yadernykh Dannykh Ploschad Bondarenko 249 020 Obninsk, Kaluga Region, RUSSIA	Center codes: 4, Q Telephone: +7 084-399-8982 Fax: +7 095-883-3112 Email: *name*@***ippe***.obninsk.ru rndc.ippe.obninsk.ru
Remaining countries	
IAEA Nuclear Data Section Wagramerstr. 5, P.O.Box 100 A-1400 Vienna, AUSTRIA	Center codes: 3, D, G, V. Telephone: +43 (1) 2360 1709 Fax: +43 (1) 234 564 Email: *name*@iaeand.iaea.or.at www-nds.iaea.or.at

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[9] The four principal centers are responsible for maintaining customer services for the area given.

[10] *nn* = first and last initial of person to be contacted, *e.g.*, NNDCCD@BNL.GOV.

Other participating centers.

National Scientific Research Center Kurchatov Institute Russia Nuclear Center 46 Ulitsa Kurchatova 123 182 Moscow, RUSSIA	Center codes: A, B Email: Chukreev@cajad.kiae.su ***Feliks@polyn.kiae.su***
Institute of Nuclear Physics Moskovskiy Gos. Universitet Vorob'evy Gory 119 899 Moscow, RUSSIA	Center code: M Email: varlamov@cdfe.npi.msu.***su***
China Nuclear Data Center China Institute of Atomic Energy P.O. BOX 275 (41) Beijing 102413, CHINA	Center code: S Email: cndc@mipsa.ciae.ac.cn
Japan Charged Particle Reaction Group Dept. of Physics Hokkaido University Kita-10 Nisha-8, Kita-ku Sapporo 060, JAPAN	Center code: E, R Email: kato@nucl.phys.***hokudai***.ac.jp
Dr. F. T. Tárkányi Cyclotron Application Department ATOMKI, Institute of Nuclear Research Bem Tér 18/c, P. O. Box 51 H-4001 Debrecen, HUNGARY	Contributes data under center code D Email: tarkanyi@atomki.hu
Russian Federal Center - VNIIEF Sarov, Nizhni Novgorod Region 607 190 pr. Mira 37, RUSSIA	Center code: F Email: dunaeva@expd.***vniief***.ru

Appendix B

CINDA Reader Codes

Code	**Reader**	**Country**
0	IAEA Nuclear Data Section: corrections	
2	NEA Data Bank	
3	I.L. Nitteberg	Norway
4	A. Ventura	Italy
5	H. Bruneder	Austria
6	F. Hijerup	Denmark
7	NEA Data Bank	
8	NEA Data Bank	
9	E. Ramstrom	Sweden
B	F. Poortmans	Belgium
E	C. Bastian	Euratom
F	F. Wasastjerna	Finland
L	F. Manero	Spain
N	T. Nakagawa (JAERI, Tokai), T. Fukahori (JAERI, Tokai), S. Chiba (JAERI, Tokai), O. Iwamoto (JAERI, Tokai), H. Kitazawa (National Defense Academy, Tokyo), M. Kawai (KEK,Tsukuba), T. Ohsaki (Tokyo Institute of Technology, Tokyo)	Japan
O	Russian Nuclear Center, Obninsk	Russia
S	K. Junker	Switzerland
W	M.F. James J.S. Storey M. Moxon	United Kingdom
Y	J. Frèhaut	France
Z	H. Behrens	Germany
(	H.A.J. Van der Kamp	The Netherlands
+	National Nuclear Data Center	U.S.A.
$	IAEA Nuclear Data Section	
&	Other than NNDC	U.S.A.
?	NEA Data Bank: automatic or semi-automatic generation of entries	

Appendix C

CINDA2001 Exchange Format

The fields are as follows.

Columns	Contents	Formats	Example
1	Operation code	A1	As in CINDA
2-8	Z,A	2I3, A1	Target Z, A, isomeric state: (ZZZAAAM)
9-23	Reaction	A15	Generally, EXFOR REACTION SF2-SF3
24-26	Quantity	A3	From DANIEL Dictionary 13.
27-33	Laboratory	A7	EXFOR code with area code
34-38	Block #	A5	Area code, followed by center assigned block #
39-40	Sequence #	I2	Sequence within block
41	Work type	A1	As in CINDA[11]
42	Reader code	A1	At discretion of center (blanks allowed)[12]
43-56	Energy range	2(E7.1)	Min + max in format: `+n.n+ee`
57	Hierarchy code	I1	Hierarchy for references (0-6, 8, 9)
58-86	Reference and date	A23,I6	Type: as in CINDA (A1), Reference code: as in EXFOR (A22), Date: year and month (YYYYMM) Exception for hierarchy 8 (nuclide list) and hierarchy 9 (additional laboratory list).
87-124	Comment	A38	As in CINDA
125-132	Modification date	I8	Date of compilation/loading: year/month/day (YYYYMMDD)

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[11] With the exception that the mixed mode codes will be eliminated. For example, entries for theoretical calculations will be separated from experimental data.

[12] That is, centers may choose not to use a reader code.

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Example of the CINDA2001 Exchange format

Operation *Z* *A* Reaction **~BlockID (unique)** *Quantity* *Lab* *Block #* Seq. # Work -type Reader E-min E-max Hierarchy Reference Date-ref Comment Date-mod *Old Quantity*

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 I3  I3A       A15      A3   A7    A5 I2AA   A7     A7  I          A23            I6     A38
1-.-.-.-10.-.-.-.-20.-.-.-.-30.-.-.-.-40.-.-.-.-50.-.-.-.-60.-.-.-.-70.-.-.-.-80.-.-.-.-90.-.-.-.100.-.-.-.110.-.-.-.120.-.-.-.130.-135
123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.12345
A  0  1 N,TOT          CS 1USAPTN17730 1EC 7.0+08 3.6+093J,PR/D,8,136           197307Devlin+ MOM = 0.7-3.6 GEV/C.          19900117TOT
A  0  1 N,TOT          CS 1USAPTN17730 2EC 7.0+08 3.6+0964,EXFOR10365.005       198304.26 PTS. SIGMA.                       19900117TOT
A  0  1 N,TOT          CS 1USAPTN17730 3EC 7.0+08 3.6+0964,EXFOR10365.004       198304.26 PTS. SIGMA. N-P + N-N.            19900117TOT
A  0  1 N,TOT          CS 1USAPTN17730 4EC              91USABNL,1USALAS,2FR ILL,2GERJUL,2GERKFK                            19900117TOT
A  0  1 N,TOT          CS 1USALRL17000 1T+        6.0+075R,DOE-NDC-47,86        198804Brown+ NDG.                           19900117TOT
A  0  1 N,EL           DA 1USAUI 17000 1T+ 5.0+07 2.0+083J,PR/C,36,2221         198712Schiavilla+ GRPHS.CORREL.BORN APPROX  19900117DEL
A  0  1 N,EL           DA 1USALRL17000 1T+        6.0+075R,DOE-NDC-47,86        198804Brown+ NDG.                           19900117DEL
A  1  1 N,X            EVL1USAYAL10010 1D8        1.0+073J,ARN,2,365            195300Breit+SCATT LENGTH- SEE PAGE 384      19900117EVL
A  1  1 N,X            EVL1USAUNC10010 1DC 2.5-02 1.0+073R,NDA-57-27            195609Monroe+.TOT,ABS.TABLE+CURVE           19900117EVL
A  1  1 N,X            EVL1USAGEN10010 1D8 3.2-02 1.0+073R,APEX-467             195806Tralli+.18GROUPS ABS                  19900117EVL
A  1  1 N,X            EVL1USAGEN10020 1D8Maxw          3R,APEX-467             195806Tralli+.ONLY 2.23 MEV LINE FOR SNG    19900117EVL
A  1  1 N,X            EVL1USAPCT11500 1D+ 2.5-02 1.4+073R,NP-8216              195810Lamarsh+ ALL DATA                     19900117EVL
A  1  1 N,X            EVL1USAUNC10020 1D8 4.1-02 1.8+073R,TID-21294            196303Goldstein.TOT SEL                     19900117EVL
A  1  1 N,X            EVL1USAAI 10030 1DC 1.0-03 1.0+073R,NAA-SR-M-8904        196308Alter+.TOT SCT NG                     19900117EVL
A  1  1 N,X            EVL1USAAI 10030 2DC 1.0+04 1.4+073R,NAA-SR-TDR-,6545     196106Alter.TABULATED TOT,SEL,SIN           19900117EVL
A  1  1 N,X            EVL1USAAI 10030 3DC 1.0+00 1.0+073R,NAA-SR-TDR-,5861     196011Alter.TABULATED TOT,SEL,SIN.MTECARLO  19900117EVL
A  1  1 N,TOT          CS 1USACOL10010 1E2Maxw          3J,PR,48,265            193508Dunning+ IONCH,TRANS,SIG SLOW+FAST N  19900117TOT
A  1  1 N,TOT          CS 1USACOL10010 2ECMaxw          04,EXFOR00000.000       198403.1 PT. SIGMA. IN COMPILATION          19900117TOT
A  1  1 N,TOT          CS 1USAPTN10010 1E2 2.4+06        2J,PR,52,911            193711Ladenburg+ TRANSMISSION, D-D NEUTS    19900117TOT
A  1  1 N,TOT          CS 1USAPTN10010 2EC 2.4+06        3J,PR,52,1255           193712.FURTHER ANALYSIS                     19900117TOT
A  1  1 N,TOT          CS 1USAPTN10010 3E+ 2.4+06        64,EXFOR13790.002       200208.1 PT. SIGMA.                         20020812TOT
A  1  1 N,TOT          CS 1USABRK10010 1E2Maxw    2.5-023J,PR,55,339            193902Libby+ ORTHO+P-HYDROGEN, GAS TRANS    19900117TOT
A  1  1 N,TOT          CS 1USABRK10010 2E+ 2.5-02        64,EXFOR13789.002       200208.1 PT. SIGMA.                         20020812TOT
A 99255 0,F            FY 3INDTRM34190 1R$Spon          3J,PRM,33,109           198907Prakash. GRPH:SCHEMATIC A-DIST,CFD    19900516NFY
A 99255 0,F            FY 3INDTRM34190 2R$              823-V-66,24-CR-68/69/70,25-MN-68/69,26-FE-67/68/70,27-CO-70/72/75   19900516NFY
A 99255 0,F            FY 3INDTRM34190 3R$              828-NI-70/71/72,29-CU-68/68M/70/70M,30-ZN-71/71M/72/73              19900516NFY
A 99255 0,F            FY 3INDTRM34190 4R$              93INDTAT,3INDDLH                                                    19900516NFY
A 99255 N,0            RP 4CCPFEI44130 1TO 2.0+06 4.0+063J,YF,39,281            198402Kupriyanov+ SYSTEMATCS.TBL AVG WN/WF  19850319RES
A 99255 N,0            RP 4CCPFEI44130 2T$ 2.0+06 4.0+064J,SNP,39,176           198402.ENGLISH OF YF 39 281                 19850319RES
A 99256 N,F            CS 4CCPRI 44090 1COMaxw          3J,AE,26,436            196905Romanov. UPPER SIG LIMIT ESTIMAT54    19861014NF
A 99256 N,F            CS 4CCPRI 44090 2COMaxw          4J,EAF,26,48            196910.ENGLISH OF AE 26 436                 19861014NF
A 99256 N,F            CS 4CCPRI 44090 3COMaxw          4J,SJA,26,498           196910.FRENCH OF AE 26 436                  19861014NF
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A 99256 N,F            CS 4CCPRI 44090 4COMaxw          4R,BNL-TR-286           196900. ENGLISH OF AE 26 436                19861014NF
A 99256 N,F            NUD3ISLNEG34260 1T$Maxw          3J,ANE,23,239           199600Ronen.TBL DN YLD FROM 2Z-N CORRELATN  20000824NUD
A100244 N,F            CS 4ZZZDUB40010 1R$Spon          3J,REA,8,255            197006Flerov+ REVIEW,TBL OF HALF-LIVES      19701028NF
A100244 0,F            NU 4CCPKUR44050 1DOSpon          3R,IAE-2738             197500Zakharova. NUBAR=3.0+-0.5             19780927NU
A100244 0,F            NU 4ZZZDUB44800 1E$Spon          3R,JINR-15-81-706       198111Bogdanov+ ESTIMATED NU-BAR GIVEN      19820319NU
A100244 0,F            FRS4ZZZDUB44800 1E$Spon          3R,JINR-15-81-706       198111Bogdanov+ TOTAL KIN-E,MASS-ASY GIVEN  19820319FRS
A100244 0,F            FRS4CCPFEI44150 1R$Spon          3J,YK,1985,(2),27       198500Vorob'eva+ TBL EXPTS:AVG FRAG KIN-E   19900312FRS
A100244 0,F            FRS4CCPFEI44150 2R$Spon          4R,INDC(CCP)-292        198901.PG 15.ENGLISH OF YK 1985 2 27        19900312FRS
A999MNY N,X            EVL3RUMBUC34090 1D$Fast          3R,INDC(RUM)-9          197901Cuculeanu+ MULTIGROUP SETS CFD,TABLE  19790226EVL
A999MNY N,X            EVL4CCPFEI44180 1RO 1.0-05 2.0+073C,88MITO,,611          198805Blokhin+.REPORT OF USSR EVL LIBRARY   19890926EVL
A999MNY N,X            EVL4CCPFEI44200 1DOFiss          3R,FEI-2041-89          198900Pashchenko. THRS REAC SIG,SPEC U-235  19930303EVL
A999MNY N,X            EVL4CCPFEI44200 2DOFiss          3R,FEI-2041-89          198900Pashchenko. THRS REAC SIG,SPEC CF252  19930303EVL
A999LPF N,EL           POT3AULAUA30010 1T0NDG           3R,AAEC/E-163           196609COOK. COMPILATN+CALC PROGRAM=GUNYA 1  19900618POT
A999LPF N,EL           POT3AULAUA30010 2C0NDG           5R,AAEC/TM-343          196609.BIBLIOGRAPHY OF CODES                19900618POT
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APPENDIX D:

CINDA2001 Quantities (Daniel Diction 13)

The CINDA quantity to be used in the fourth field of the CINDA file (in format A3) is given in the 2nd column containing alphabetic codes, e.g. MFQ, COR, CS etc. The first code given below is a previously internally used code. Hence for a standard cross section use CS, for a differential with angle use DA, or with energy use DE. (Similar usage as in EXFOR, except CS is used not SIG for a standard cross section.)

*	T	MFQ		Special quantity (nu, alpha, etc.)
CO		COR	4	Angular correlation
COD		COR	4	Partial angular correlation d/dE'
COP		COR	34	Partial angular correlation
CS	T	CS		Cross section
CS 4	T	CS	4	Differential d/dAngle * 4pi
CS+		CS		Cross section (nonstandard)
CSP	T	CSP	3	Partial cross section
CSP4	T	CSP	34	Partial differential d/dAngle * 4pi
CST	T	CST	6	Temperature dependent cross section
D3A		DAE	34	Triple differential dAngle1/dAngle2/dE'
D3E		DAE	34	Triple differential dAngle/dE1'/dE2'
D4A		DAE	34	Quadruple diff. dAng1/dAng2/dE1'/dE2'
DA	T	DA	4	Differential d/dAngle
DA*		MFQ	4	Special quantity, d/dAngle
DAA		DA	4	Double differential dAngle1/dAngle2
DAE		DAE	34	Double differential dAngle/dE'
DAP	T	DAP	34	Partial differential d/dAngle
DE		DE	3	Differential d/dE'
DE 4		DE	34	Differential d/dAngle/dE' * 4pi
DE*		MFQ	3	Special quantity, d/dE'
DEP		DEP		Energy spectrum for specific group
DPP		POL	34	Partial differential polarization, d/dAngle
E		E		Kinetic energy
E A		E	4	Kinetic energy as a fn. of angle
E P		E	3	Kinetic energy for specific groups
EC		COR		Energy correlation
EDA		E	4	Kinetic energy, differential, d/dAngle
FC		DA	5	Cosine coefficient
FCP		DAP	3 5	Partial cosine coefficient
FL		DA	5	Legendre coefficient
FLP		DAP	3 5	Partial Legendre coefficient
FS		DA	5	Sine coefficient
FS2		DA	5	Sine**2 coefficient
FY	F	FY	7	Fission product yield
FYA	F	FY	4 7	Fission product yield as fn. of angle

FYE	F	FY	3	7	Fission product yield, differental, d/dE
FYP	F	FY	3	7	Fission product yield as fn. of sec. particle energy
FYZ	F	FY		7	Fission mass yield
G *		MFQ	6		Yield of half-life group
IAP		CSP	34		Cross section integral over inc.en., d/dAngle * 4pi,par
IDA		DA	4		Cross section integral over inc.en., d/dAngle
INP		CSP	3		Cross section integral over inc.en. for given E' or lev
INT		CS			Cross section integral over incident energy
INT4		CS	4		Cross section integral over inc.en., d/dAngle * 4pi
L		L			Length or amplitude
L P		L	3		Partial length or amplitude
LC		COR			Linear momentum correlation
LCP		COR	3		Partial linear momentum correlation
MC		COR			Effective mass correlation
NQ		NQ			Nuclear quantity
P *		MFQ	3		Partial yield for special quantity
PDE		POL	34		Differential polarization, d/dAngle/dE'
PO		POL			Polarization
POD		POL	4		Differential polarization, d/dAngle
POF		POL	5		Polarization fitting coefficient
PPD		POL	34		Partial differential polarization, d/dAngle
PTD		POL	45		Differential polarization, d/dAngle, tensor
PTP		POL	345		Partial differential polarization, d/dAngle, tensor
PY		PY		7	Product yield (other than fission)
PY+		PY		7	Product yield (other than fission, nonstandard)
PYP		PY	3	7	Product yield (other than fission, nonstandard)
RE	R	RP	1		Resonance energy
RI		RI			Resonance integral
RIL		RI			Resonance integral over limited energy

						range
RP	R	RP	1			Resonance parameter
RP*		MFQ	1			Special quantity at resonance
RPE		E	1			Resonance kinetic energy
RPP		RP	1			Partial resonance parameter
RR		RR				Reaction rate
SP		SP		3		Secondary energy spectrum
SPA		SP		34		Secondary energy spectrum as a function of angle
SPP		SP		3		Partial secondary energy spectrum (for given level)
SPR		SP	1	3		Spectrum at resonance
TD2		TTD		34		Differential thick target yield, d/dAngle/dE'
TDA		TTD		4		Differential thick target yield, d/dAngle
TDE		TTD		3		Differential thick target yield, d/dE'
TDP		TTD		34		Partial differential thick target yield, d/dAngle
TT		TT				Thick target yield
TT+		TT				Thick target yield (nonstandard)
TTP		TTP		3		Partial thick target yield
ZP		FY			7	Most probable mass/charge
ZPA		FY		4	7	Most probable mass/charge as a fn. of angle
ZPP		FY		3	7	Most probable mass/charge for given fragment energy