WP2007-10

EXFOR+
Interpreted (extended) EXFOR format
Proposal by V.Zerkin, IAEA-NDS, 2006
Status: under development...

Basic ideas of EXFOR+:

1. Looks like original EXFOR with some extensions given by coloured text
2. Extended part (if any) appears at the end of keyword section in separate lines starting from position 12 and symbol #
3. Right columns of original EXFOR file are eliminated (ENTRY, Subent, Line#)
4. No limit of the line size
5. Data are not broken by 6 in a line (all data of one row are in one text line)
6. Data are left aligned, do not have a space in value, always have "E" where needed
7. Sould be [relatively] easy for adoptation of programs dealing with original EXFOR files

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Current status of implementation:

1. Available under IAEA-NDS EXFOR Web retrieval system since Oct-2006:
   - http://www-nds.iaea.org/exfor/
2. Expansion of codes for Keywords:
   - INSTITUTE, REFERENCE, DETECTOR, FACILITY, METHOD, REACTION-Subfields
3. Additional information for Reference-codes:
   - DOI, URL (Web-link), NSR-KeyNo
4. DATA and COMMON
   - Data lines without horisontal size limit
   - Explanation of Headers (popup Tool-Tip-Text)
   - Simplified representation of values
   - N3 in DATA/COMMON line is used to identify number of columns
5. Colored ENTRY and SUBENT lines

Examples

INSTITUTE

```
INSTITUTE  (1USAMHG)
           #(1USAMHG) University of Michigan, Ann Arbor, MI, USA
```

REFERENCE

```
REFERENCE  (J,NP/B,92,269,197506)
           (J,PRL,33,1440,197412)
           (J,PR/C,11,1117,197504)
           # (J,NP/B,92,269,197506) Journ.: Nuclear Physics, Section B, Vol.92, p.269 (1975) Netherlands
           # (J,PRL,33,1440,197412) Journ.: Physical Review Letters, Vol.33, p.1440 (1974) USA
           #+    #NSR=1974JO13 #DOI=10.1103/PhysRevLett.33.1440
           # (J,PR/C,11,1117,197504) Journ.: Physical Review, Part C, Nuclear Physics, Vol.11, p.1117 (1975) USA
           #+    #URL=http://publish.aps.org/abstract/PRC/v11/p1117
```

DETECTOR

```
DETECTOR   (TELES)
           #(TELES) Counter telescope
```

FACILITY

```
FACILITY   (CCW,4RUSRI )  Neutron Generator NG-400
           #(CCW) Cockcroft-Walton accelerator
           #(4RUSRI) Khlopin Radievij Inst., St.Petersburg, Russia
```

METHOD

```
METHOD     (TOF).
           #(TOF) Time-of-flight
```

REACTION

```
REACTION    ((13-AL-27(N,G)13-AL-28,,SIG,,MXW)/
            (5-B-0(N,ABS),,SIG,,MXW)) RATIO OF AL CAPTURE TO
            BORON ABSORPTION CROSS SECTIONS.
            #(13-AL-27(N,G)13-AL-28,,SIG,,MXW)   Quantity: [CS] Cross section
            #(5-B-0(N,ABS),,SIG,,MXW)   Quantity: [CS] Cross section
            #        Process: [ABS] Absorption
            #        Modifier: [MXW] Maxwellian average   The appropriate spectrum temperature is to be given under ....
```

DATA **(*compare with original EXFOR)**

DATA		8	13	8				
EN	EN-RSL	DATA	1ERR-T	1MONIT	MONIT-ERR	DATA	2ERR-T	2
MEV	MEV	NO-DIM	NO-DIM	MB	MB	MB	MB	
13.59	0.27				0.6	199.7	2.	
14.17	0.33				0.6	193.9	2.	
14.78	0.28	1.567	0.013	112.6	0.7	173.2	2.	
15.23	0.2	1.567	0.017	108.	1.5	165.2	3.	
15.4	0.24	1.595	0.018	105.7	1.8	164.2	3.4	
15.54	0.22	1.6	0.015	103.5	1.9	161.1	3.5	
15.93	0.25	1.558	0.014	95.8	1.8	144.1	3.2	
16.23	0.18	1.623	0.015	89.3	1.8	139.3	3.2	
16.29	0.28	1.63	0.015	88.1	1.7	137.9	3.1	
16.59	0.15	1.646	0.014	81.8	1.7	128.3	3.1	
16.77	0.34	1.642	0.019	78.9	1.8	122.9	3.3	
17.09	0.12	1.618	0.02	73.6	1.9	112.1	3.4	
17.86	0.08	1.791	0.02	62.9	2.1	112.7	4.	
ENDDATA	30							

(tooltip: Incident Projectile Energy Resolution (Unspecified))

*Original EXFOR: DATA section

```
DATA              8         13                            30799002    11
EN        EN-RSL    DATA      1ERR-T    1MONIT    MONIT-ERR 30799002    12
DATA      2ERR-T    2                                       30799002    13
MEV       MEV       NO-DIM    NO-DIM    MB        MB         30799002    14
MB        MB                                                30799002    15
  13.59     0.27     1.607     0.014     125.2     0.6       30799002    16
199.7       2.0                                              30799002    17
  14.17     0.33     1.628     0.015     120.6     0.6       30799002    18
193.9       2.0                                              30799002    19
  14.78     0.28     1.567     0.013     112.6     0.7       30799002    20
173.2       2.0                                              30799002    21
  15.23     0.20     1.567     0.017     108.0     1.5       30799002    22
165.2       3.0                                              30799002    23
  15.40     0.24     1.595     0.018     105.7     1.8       30799002    24
164.2       3.4                                              30799002    25
  15.54     0.22     1.600     0.015     103.5     1.9       30799002    26
161.1       3.5                                              30799002    27
  15.93     0.25     1.558     0.014     95.8      1.8       30799002    28
144.1       3.2                                              30799002    29
  16.23     0.18     1.623     0.015     89.3      1.8       30799002    30
139.3       3.2                                              30799002    31
  16.29     0.28     1.630     0.015     88.1      1.7       30799002    32
137.9       3.1                                              30799002    33
  16.59     0.15     1.646     0.014     81.8      1.7       30799002    34
128.3       3.1                                              30799002    35
  16.77     0.34     1.642     0.019     78.9      1.8       30799002    36
122.9       3.3                                              30799002    37
  17.09     0.12     1.618     0.020     73.6      1.9       30799002    38
112.1       3.4                                              30799002    39
  17.86     0.08     1.791     0.020     62.9      2.1       30799002    40
112.7       4.0                                              30799002    41
ENDDATA           30                                        30799002    42
```

Full "EXFOR+" file

```
REQUEST        1237001    20061013         3     104340
ENTRY            40374    20010311   20011019   20050926        0000
SUBENT        40374001    20010311   20011019   20050926        0000
BIB                 11         17
INSTITUTE  (4RUSFEI)
           #(4RUSFEI) Fiziko-Energeticheskii Inst., Obninsk, Russia
REFERENCE  (J,ZET,34,(3),574,195803)
           (J,AE,8,549,196009) REVISED DATA FOR SEVERAL ELEMENTS
           # (J,ZET,34,(3),574,195803) Journ.: Zhurnal Eksperimental`noi i Teoret. Fiziki, Vol.34, Issue.3, p.574 (1958)
           # (J,AE,8,549,196009) Journ.: Atomnaya Energiya, Vol.8, p.549 (1960)  Russia
AUTHOR     (T.S.BELANOVA)
TITLE       ABSORPTION CROSS-SECTION MEASUREMENTS
            FOR FAST NEUTRONS
INC-SOURCE (PHOTO)  SB-BE   25 KEV
                    NA-D2-O 220 KEV
                    NA-BE   830 KEV
SAMPLE      SPHERICAL LAYERS
METHOD     (SHELT)  SHELL TRANSMISSION
           #(SHELT) Shell transmission
DETECTOR   (LONGC)
           #(LONGC) Long counter
MONITOR     ABSOLUTE MEASUREMENTS
STATUS     (NDD) DATA CONTAINED ON THE NDD EXCHANGE TAPE
HISTORY    (19830301C)
           (19860707A) SOME SUBENTRIES CORRECTED
           (20010311A) DATE is corrected
ENDBIB              17
NOCOMMON             0          0
ENDSUBENT           20
SUBENT        40374003    20010311   20011019   20050926        0000
BIB                  1          1
REACTION   (13-AL-27(N,G)13-AL-28,,SIG)
           #(13-AL-27(N,G)13-AL-28,,SIG)  Quantity: [CS] Cross section
ENDBIB               1
NOCOMMON             0          0
DATA                 5          3
EN         EN-ERR    DATA       ERR-T     DATA-MAX
KEV        KEV       MB         MB        MB
25.        3.        17.        3.
220.       20.       6.         3.
830.       40.                            16.
ENDDATA              5
ENDSUBENT           11
ENDENTRY             2
ENDREQUEST           1
```