

**Recent progress in
"exfor" Web tools and database.
Light Web-based EXFOR and ENSDF editors.**

Viktor Zerkin

International Atomic Energy Agency, Nuclear Data Section



Topics:

Part I.

1. News in web database retrieval systems (2016)
2. New login system
3. Uploading your experimental data
4. EXFOR-NSR PDF database
 - Access to PDF database by years
 - Merging PDF collections to PDF database

Part II.

Light Web-based EXFOR and ENSDF editors

News in database retrieval systems (2016)

EXFOR:

- PDF's of INDC Reports: open for public access (Access Level=0)
- Input users' experimental data to be processed on Web
 - enter without password, but with “human” control
 - upload own data without knowledge of EXFOR format
 - goal: using web exfor tools, such as: constructing covariance matrix, calculating inverse reaction cross sections, etc.
- Links to secondary publications: Web, NSR, PDF

ENDF:

- New and updated libraries:
 - JENDL-4.0u2 /upd:20160106/ Japanese evaluated nuclear data library
 - IBA-EVAL: Differential data for ion beam analysis, 2013
 - JENDL-4.0/HE 2015 (neutrons, protons up to 200 MeV)
 - JENDL-3.2 Japanese evaluated nuclear data library, 1994

CINDA:

- Links to PDF files

News in Web tools (2016)

login:

- “human” checking without password system

x4data: */uploading user's experimental data/*

- released for public with “human” checking

myplot: */uploading user's data to web-zvview/*

- password protection replaced by “human” checking

myEnsdf:

- added two checking codes from PNPI
- added two ENSDF viewers and editor
- dual entrance

myEndf:

- upgraded GRUCON-D to version: 20-Jun-2016
- updated to the latest version: CHECKR, FIZCON, INTER, PSYCHE, STANEF

News in Web Mirror-sites

New Mirror-site in Russia:

<http://www-nds.atomstandard.ru/> (Sept. 2016)



Now EXFOR Web system is available on:

- IAEA-NDS <https://www-nds.iaea.org/exfor/>
- NNDC, USA <http://www.nndc.bnl.gov/exfor/>
- BARC, India <http://www-nds.indcentre.org.in/exfor/>
- CNDC, China <http://www-nds.ciae.ac.cn/exfor/>
- "Atomstandart", Russia <http://www-nds.atomstandard.ru/exfor/>

Limitations of EXFOR system on Mirror-sites:

- No archival EXFOR Entries
- No links to PDF's
- No PDF's

Negative news (2016)

EMPIRE distribution:

- stopped web downloading of “Portable Empire for Windows”
(problem with Tcl/Tk license)

New login system

We check only that user is “human” (to stop hackers using robots)

- /x4data/ Uploading experimental data
- /myplot/ Upload data and plot
- myEnsdf login modes: Guest and Evaluator
- **common Login system - ?**

First entrance

International Atomic Energy Agency
IAEA.org | NDS Mission | About US | Mirrors: India | China


Nuclear Data Services

Provided by the Nuclear Data Section

Search Go

Web tools for experimenters

Upload your data to EXFOR system for comparing with EXFOR and ENDF data, plotting, constructing covariance matrix, calculating inverse reaction data, etc.
Web server: development.nndc.bnl.gov

Required code:  Refresh	Enter code: <input type="text" value="3759"/> Go!
--	---

Random
number

User's
input

Second entrance

Web tools for experimenters

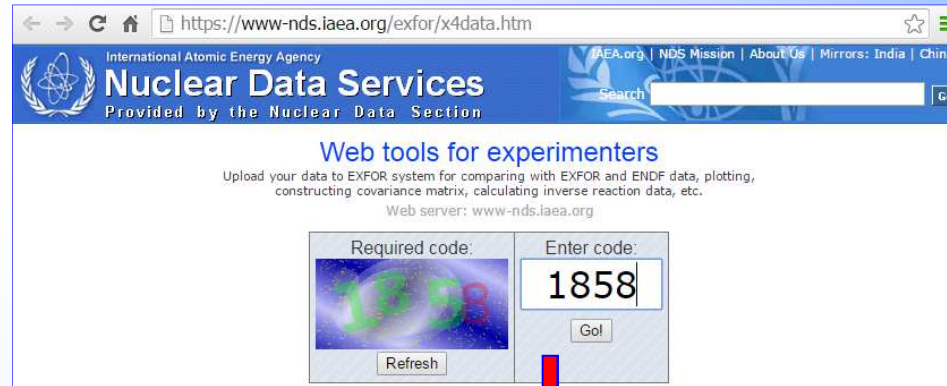
Upload your data to EXFOR system for comparing with EXFOR and ENDF data, plotting, constructing covariance matrix, calculating inverse reaction data, etc.
Web server: development.nndc.bnl.gov

You already login. [Enter]

Required code:  Refresh	Enter code: <input type="text"/> Go!
--	--

Uploading your experimental data

<http://www-nds.iaea.org/exfor/x4data.htm>

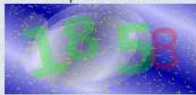


International Atomic Energy Agency
Nuclear Data Services
Provided by the Nuclear Data Section

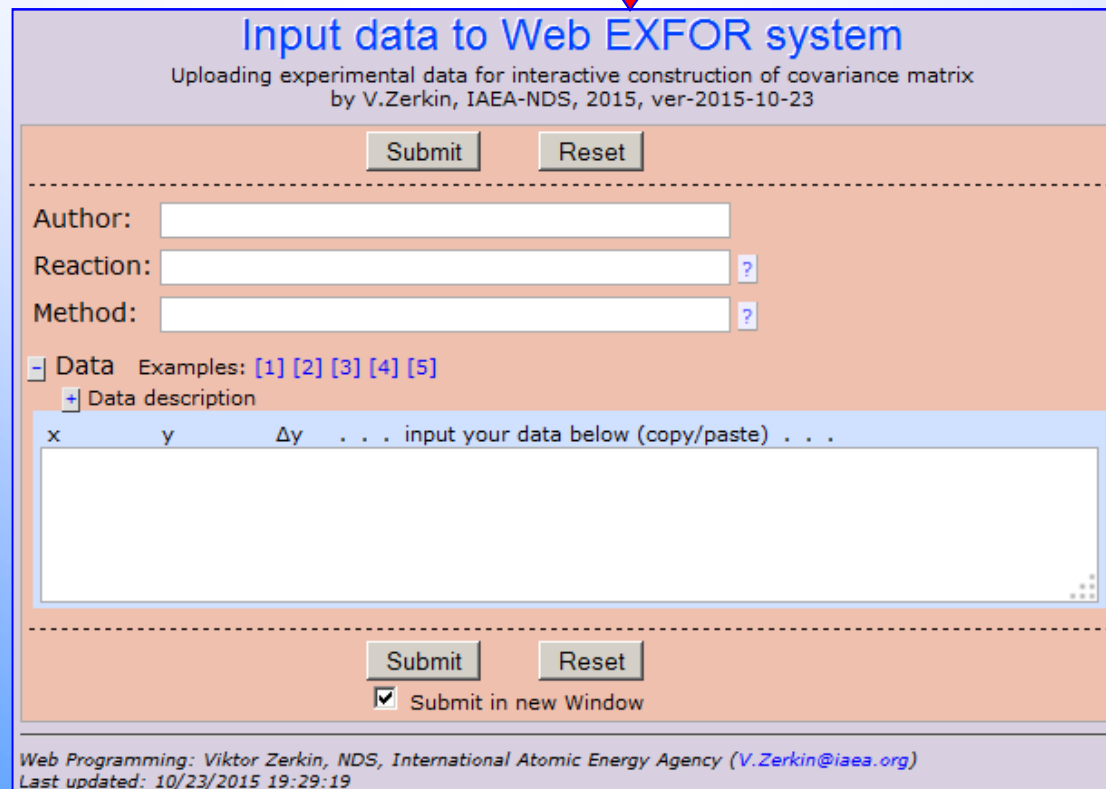
IAEA.org | NDS Mission | About Us | Mirrors: India | China

Search

Web tools for experimenters
Upload your data to EXFOR system for comparing with EXFOR and ENDF data, plotting, constructing covariance matrix, calculating inverse reaction data, etc.
Web server: www-nds.iaea.org

Required code: 

Enter code:



Input data to Web EXFOR system
Uploading experimental data for interactive construction of covariance matrix
by V.Zerkin, IAEA-NDS, 2015, ver-2015-10-23

Author:

Reaction: ?

Method: ?

Data Examples: [\[1\]](#) [\[2\]](#) [\[3\]](#) [\[4\]](#) [\[5\]](#)

Data description

x	y	Δy	...	input your data below (copy/paste)	...

Submit in new Window

Web Programming: Viktor Zerkin, NDS, International Atomic Energy Agency (V.Zerkin@iaea.org)
Last updated: 10/23/2015 19:29:19

Uploading your experimental data /cont./

Author:

Reaction: ?

Method: ?

Data Examples: [\[1\]](#) [\[2\]](#) [\[3\]](#) [\[4\]](#) [\[5\]](#)

Data description

Uncertainties Δy : | ; nn=7

Var:	{X}	{Y}	{ ΔY }1	{ ΔY }2	{ ΔY }3	{ ΔY }4	{ ΔY }5	{ ΔY }6	{ ΔY }7
Header:	EN	DATA	ERR-TOT	MONIT-ERR	ERR-1	ERR-2	ERR-7	ERR-8	ERR-3
Units:	MeV	mb	per-cent	per-cent	per-cent	per-cent	per-cent	per-cent	per-cent
Type:	Table	Table	Table	Table	Table	Table	Table	Table	Const
Value:									1.2

x	y	Δy	input your data below (copy/paste)					
8.34	96.8	6.5	1.9	5	1	.9	.3	
9.15	162.9	5.7	1.9	4	1	.6	.3	
13.33	241.8	4.6	1.6	2.5	1	.4	.3	
16.1	152.4	4.6	2	2.1	1	.6	.3	
17.16	116.1	4.4	2	1.5	1	.6	.3	
17.9	105.7	4.4	2.2	1.3	.7	.7	.3	
19.36	89.5	8.2	3.1	6.3	2	.6	1.3	
19.95	102.1	5.8	4.1	1.4	1	.6	1.4	
20.61	77.9	8.8	5.4	5.7	1.6	.6	1.4	

Submit in new Window



n	Display	Year	Author-1	Energy range, eV	Points	Reference
1)	95-AM-241(N,2N)95-AM-240,,SIG	C4:	MF3 MT16			
Quantity: [CS] Cross section						
1	<input type="checkbox"/> + uploaded X4 X4± Cov	2016	C.Sage+	8.34e6 2.061e7	9	+ W,SAGE,20160622
2	<input type="checkbox"/> + i X4 X4+ X4± T4 Cov	2016	A.Kalamara+	1.00e7 1.71e7	4	[pdf]+ J,PR/C,93,014610,2016

Data flow

Experimentalist

Compiler

User

Input your experimental data

Input EXFOR file

Input criteria for search

EXFOR file

Uploading

EXFOR Request

EXFOR Search

Database

Retrieve

Plotting

ENDF Retrieval

Produce: C4, C5, C5M, XML, X4±, X4+, etc.

Re-normalization

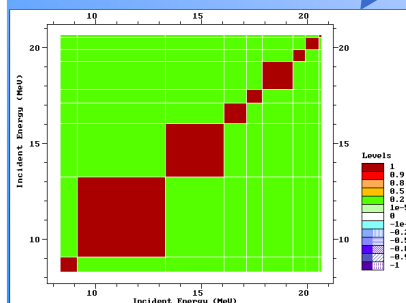
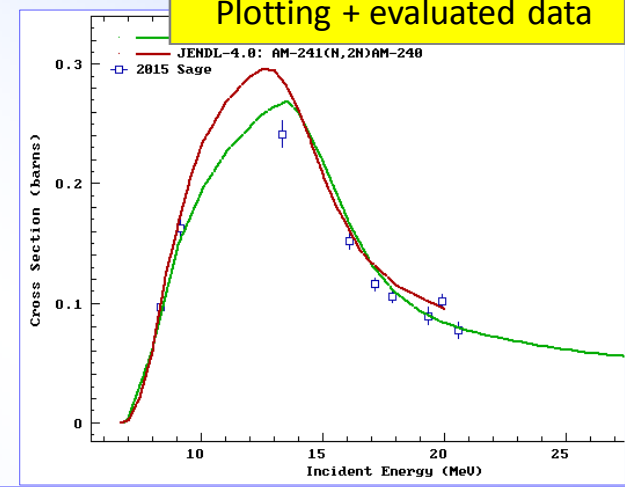
Plotting + evaluated data

Constructing covariance matrices

Calculation of inverse reaction cross sections

Plotting

Save/restore recipe.xml



#ENDF Am-241 MT16:2n

Z(10x10): $Z_{i,j} = \text{Cor}(\sigma_{Xi}, \sigma_{Yj}) * 100$

	X (MeV)	8.34	9.15	13.33	16.1	17.16	17.9	19.36	19.95	20.61	20.61	j
8.34	100	48.36	41.72	38.39	37.26	36.52	35.13	34.6	34.03	34.03	1	
9.15	48.36	100	43.36	40.03	38.9	38.15	36.77	36.24	35.67	35.67	2	
13.33	41.72	43.36	100	46.67	45.54	44.8	43.41	42.88	42.31	42.31	3	
16.1	38.39	40.03	46.67	100	48.87	48.13	46.74	46.22	45.64	45.64	4	
17.16	37.26	38.9	45.54	48.87	100	49.25	47.87	47.34	46.77	46.77	5	
17.9	36.52	38.15	44.8	48.13	49.25	100	48.62	48.09	47.51	47.51	6	
19.36	35.13	36.77	43.41	46.74	47.87	48.62	100	49.47	48.9	48.9	7	
19.95	34.6	36.24	42.88	46.22	47.34	48.09	49.47	100	49.43	49.43	8	
20.61	34.03	35.67	42.31	45.64	46.77	47.51	48.9	49.43	100	49.43	9	
20.61	34.03	35.67	42.31	45.64	46.77	47.51	48.9	49.43	49.43	100	10	
i	1	2	3	4	5	6	7	8	9	10		

```
<?xml version="1.0" encoding="UTF-8" ?>
- <CovRecipe DatasetID="Z0001002" Created="2015-10-23 20:35:25" Software="Web-tool:2012.03.16">
  <Subent id="Z0001002" x4upd="20151023" />
  <Reacode code="95-AM-241(N,2N)95-AM-240,,SIG" />
  <defineErr name="Statistical" type="C5" cmd="Setup" src="Total" coeff="0.5" />
  <defineErr name="myErr-1" type="myErr" cmd="Setup" src="Systematic" coeff="0.5" />
  <defineErr name="myErr-2" type="myErr" cmd="Setup" src="Systematic" coeff="0.5" />
  <addCovarFraction errName="Statistical" errType="C5" corrType="SERC" fracType="Uncorrelated" />
  <addCovarFraction errName="myErr-1" errType="myErr" corrType="LERC" fracType="Fully-correlated" />
  <addCovarFraction errName="myErr-2" errType="myErr" corrType="MERC" fracType="MERC-correlated"
    MercType="Log" MercInterval="0.05" MercEnMin="1e-5" MercEnMax="2e7" EnUnits="eV" />
  <myStamp>EXFOR-Web-Covariance-Recipe, V.Zerkin, IAEA-NDS, 2012-03-19.</myStamp>
</CovRecipe>
```

Access to EXFOR-NSR PDF database by years

https://www.nds.iaea.org/exfor/servlet

X4PDF collection.
Database updated: 2016/10/21. Files: 54810 from 2000/04/19 to 2016/10/20.

Request #149
Access-Level=2 /pdf/

Results: Reactions: 10 Datasets: 14

Data Selection

Retrieve Selected Unselected

Output: X4+ EXFOR Bibliography

1910:2	1911:2	1912:1	-	-	-	1896:3	-	1898:4	1899:1	[1890-1899]
1920:2	1921:1	-	-	-	1924:1	-	-	1918:1	1919:1	[1910-1919]
1930:2	1931:2	1932:4	1933:1	1934:4	1935:19	1936:17	1937:30	1938:29	1939:58	[1930-1939]
1940:50	1941:38	1942:18	1943:10	1944:19	1945:21	1946:71	1947:140	1948:151	1949:268	[1940-1949]
1950:359	1951:401	1952:272	1953:187	1954:189	1955:283	1956:286	1957:311	1958:361	1959:338	[1950-1959]
1960:336	1961:436	1962:509	1963:560	1964:498	1965:632	1966:595	1967:649	1968:736	1969:787	[1960-1969]
1970:938	1971:829	1972:871	1973:1378	1974:1001	1975:797	1976:792	1977:868	1978:866	1979:804	[1970-1979]
1980:995	1981:887	1982:912	1983:824	1984:642	1985:661	1986:623	1987:628	1988:732	1989:728	[1980-1989]
1990:711	1991:645	1992:485	1993:656	1994:515	1995:608	1996:645	1997:568	1998:624	1999:694	[1990-1999]
2000:781	2001:804	2002:976	2003:995	2004:1208	2005:1163	2006:1902	2007:2169	2008:1681	2009:1566	[2000-2009]
2010:1457	2011:1695	2012:1414	2013:1463	2014:1330	2015:1268	2016:310	-	-	-	[2010-2016]

Years: 100 Publications: 54810
Checking mode //contributions to NSR-PDF

Files: 54810 from 2000/04/19 to 2016/10/20.

PDF's by contributors for checking

<p>1) 20120000_Joann /3678/</p> <p>2) 20130000_Joann /1011/</p> <p>3) 20140000_Joann /591/</p> <p>4) 20150000_Joann /439/</p> <p>5) 20151000_Joann /94/</p> <p>6) 20151012_Rodionov /2622/</p> <p>7) 20151020_Balraj /263/</p> <p>8) 20151020_corr1nndc /11/</p> <p>9) 20151106_Joann /12/</p> <p>10) 20151124_ZV /2/</p> <p>11) 20151208_Joann /11/</p> <p>12) 20151214_Audi /2626/</p> <p>13) 20151218_Joann /71/</p> <p>14) 20160122_Joann /56/</p> <p>15) 20160222_Joann /36/</p> <p>Sum: /28326/</p>	<p>16) 20160328_Rodionov /328/</p> <p>17) 20160328_Shulyak.AB /1360/</p> <p>18) 20160328_Shulyak.CE /1591/</p> <p>19) 20160328_Shulyak.FGH /704/</p> <p>20) 20160328_Shulyak.IJ /2454/</p> <p>21) 20160328_Shulyak.LMO /5/</p> <p>22) 20160328_Shulyak.N1 /2353/</p> <p>23) 20160328_Shulyak.N2 /2657/</p> <p>24) 20160328_Shulyak.P /2441/</p> <p>25) 20160407_Joann /162/</p> <p>26) 20160421_Kondev /1149/</p> <p>27) 20160601_Joann /205/</p> <p>28) 20160829_Joann /1/</p> <p>29) 20160928_Joann /1305/</p> <p>30) 20161012_Joann /73/</p>
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2016

1. J,APP/B,47,789,2016 Jour: Acta Physica Polonica, Part B, Vol.47, p.789 (2016) [pdf] DOI: 10.5506/APhysNSR:2016DI02 [pdf] NSR-Reference: Acta Phys.Pol. B47, 789 (2016)
Measurement of the $^{236}\text{U}(n,f)$ Cross Section with the MicroMegas Detector
M.Diakaki, A.Kalamara, M.Kokkoris, G.Marangouli, A.Tsinganis, A.Panagiotopoulos, R.Vlastou, E.Berthoumieux,

2. J,APP/B,47,841,2016 Jour: Acta Physica Polonica, Part B, Vol.47, p.841 (2016) [pdf] DOI: 10.5506/APhysNSR:2016MA18 [pdf] NSR-Reference: Acta Phys.Pol. B47, 841 (2016)
Study of the Near-barrier Scattering of ^8He on ^{208}Pb
G.Marquinez-Duran, A.M.Sanchez-Benitez, I.Martel, L.Acosta, K.Rusek, M.A.G.Alvarez, R.Berjillos, M.J.G.Borge, L.Standjilo, I.Strojek, O.Tengblad, R.Wolski, A.H.Zia

3. J,APP/B,47,859,2016 Jour: Acta Physica Polonica, Part B, Vol.47, p.859 (2016) [pdf] DOI: 10.5506/APhysNSR:2016KR03 [pdf] NSR-Reference: Acta Phys.Pol. B47, 859 (2016)
Gamma Decay of the Possible 1^- Two-phonon State in ^{140}Ce Excited via Inelastic Scattering of ^{17}O
M.Krcysiek, and the AGATA Collaboration

4. J,ARI,107,391,2016 Jour: Applied Radiation and Isotopes, Vol.107, p.391 (2016) [pdf] EXFOR: D4333 DC NSR: 2016TA01 [pdf] NSR-Reference: Appl.Radiat.Isot. 107, 391 (2016)
Investigation of activation cross sections of proton induced reactions on indium up to 70 MeV for practical applications
F.Tarkanyi, F.Ditroi, A.Hermannne, S.Takacs, M.Baba

5. J,ARI,110,109,2016 Jour: Applied Radiation and Isotopes, Vol.110, p.109 (2016) [pdf] EXFOR: D4334 DC NSR: 2016TA02 [pdf] NSR-Reference: Appl.Radiat.Isot. 110, 109 (2016)
Investigation of activation cross sections of proton induced reactions on indium up to 70 MeV for practical applications
F.Tarkanyi, F.Ditroi, A.Hermannne, S.Takacs, M.Baba

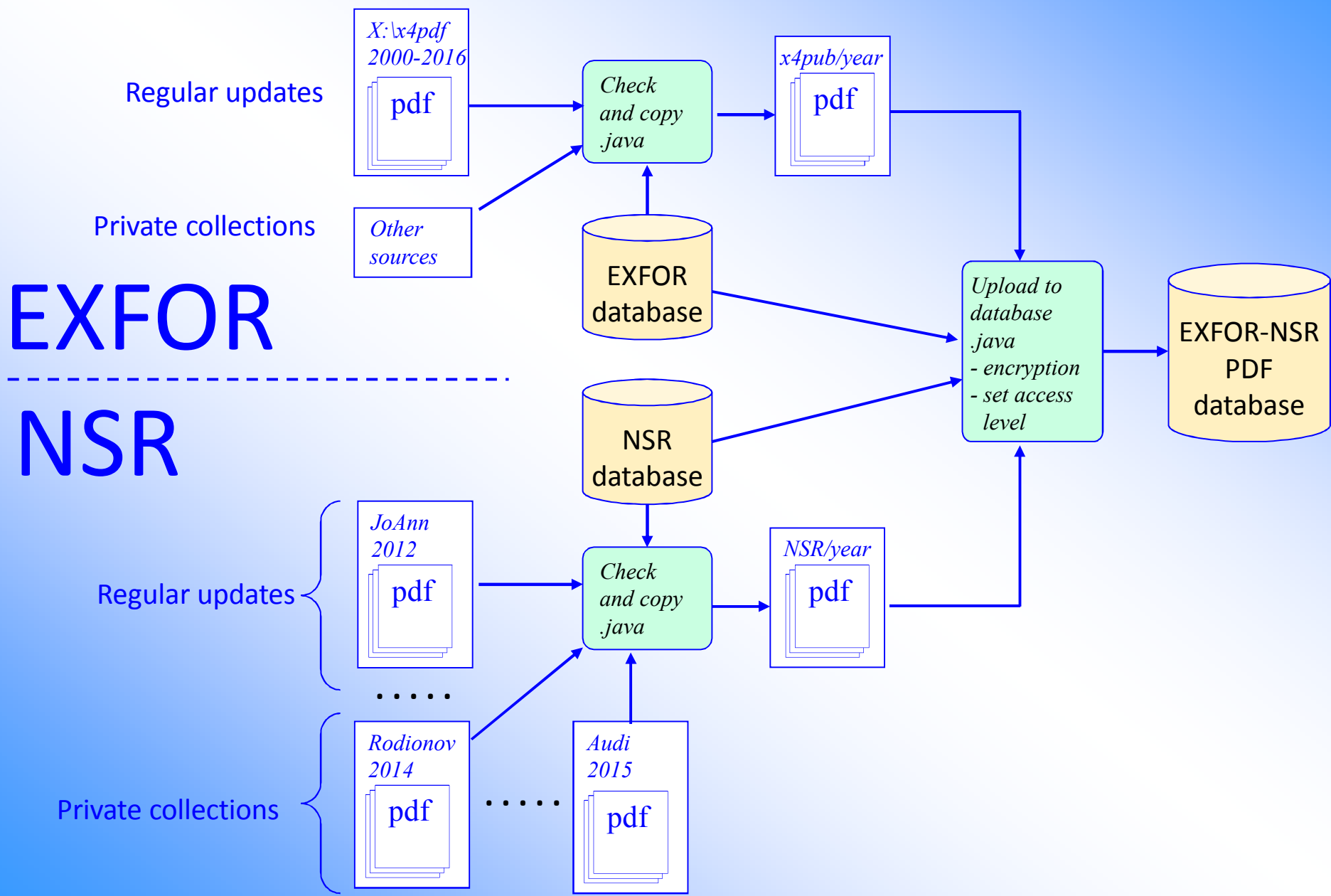
Contributions to NSR PDF database as of 22 October 2016

1) 20120000_Joann	/3678/	16) 20160328_Rodionov	/328/	31) 20161021_Joann	/15/
2) 20130000_Joann	/1011/	17) 20160328_Shulyak.AB	/1360/		
3) 20140000_Joann	/591/	18) 20160328_Shulyak.CE	/1591/		
4) 20150000_Joann	/439/	19) 20160328_Shulyak.FGH	/704/		
5) 20151000_Joann	/94/	20) 20160328_Shulyak.IJ	/2454/		
6) 20151012_Rodionov	/2622/	21) 20160328_Shulyak.LMO	/5/		
7) 20151020_Balraj	/263/	22) 20160328_Shulyak.N1	/2353/		
8) 20151020_corr1nndc	/11/	23) 20160328_Shulyak.N2	/2657/		
9) 20151106_Joann	/12/	24) 20160328_Shulyak.P	/2441/		
10) 20151124_ZV	/2/	25) 20160407_Joann	/162/		
11) 20151208_Joann	/11/	26) 20160421_Kondev	/1149/		
12) 20151214_Audi	/2626/	27) 20160601_Joann	/205/		
13) 20151218_Joann	/71/	28) 20160829_Joann	/1/		
14) 20160122_Joann	/56/	29) 20160928_Joann	/1305/		
15) 20160222_Joann	/36/	30) 20161012_Joann	/73/		
Sum: /28326/					

PDF Statistics (2016-10-22)

	References	PDF's
EXFOR	34,772	26,537 (76%)
NSR	222,219	44,796 (20%)
Joined	237,403	54,810

Merging PDF collections to PDF database



Part II.

Light Web-based EXFOR and ENSDF editors. Status and perspectives.

Viktor Zerkin

International Atomic Energy Agency, Nuclear Data Section



Topics:

- 1. Concept of Web-editors**
- 2. Light EXFOR and ENSDF Editors Projects**
- 3. ENSDF Web Viewers and Editor**
 - ENSDF Interpreted (ensdf+)
 - ENSDF interactive tree (ensdf±)
 - ENSDF web-editor (ensdf++)
- 4. Implementation of editing**
 - Editing in popup window
 - Editing on the main window (build-in frame)
 - Editing original ENSDF and interpreted information
 - Integrated editing (e.g. parallel datasets, all levels)
- 5. Concluding remarks**

Concept

- Basic nuclear data formats (EXFOR, ENSDF, ENDF) are implemented as 80 columns formatted text files. From another hand, structure of information has hierarchical logic.
- Nowadays hierarchical documents allow advanced interpretation in modern forms of information systems (e.g. using XML language, graphical presentations, etc.).
- EXFOR and ENSDF files are presented by Web-viewers as an interactive graph-tree (iTree).
- X4± and ensdf± are extended with edit-mode (top-menu, commands on nodes, editing data using dictionaries and help system, running checking and utility codes, save file original format, undo and other operations)

EXFOR → View X4± → Edit X4± → EXFOR

EXFOR file

```

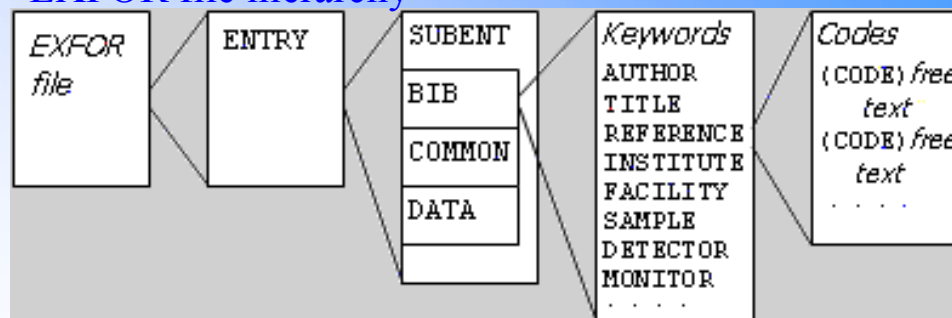
ENTRY
SUBENT
BIB
AUTHOR
TITLE
REFERENCE
.....
ENDBIB
.....
ENDSUNEBT
SUBENT
.....
ENDENTRY
ENTRY
.....
    
```

EXFOR logic

```

ENTRY
  SUBENT
    BIB
      AUTHOR
      TITLE
      REFERENCE
      .....
    ENDBIB
      .....
  ENDSUNEBT
  SUBENT
  .....
ENDENTRY
ENTRY
.....
    
```

EXFOR file hierarchy



View EXFOR: X4±

ENTRY A1495 ⚡ 1956, J.P.Schiffer+ last-updated: 2003-10-13

- SUBENT A1495001 ⚡ last-updated: 2003-10-13
- SUBENT A1495003 ⚡ last-updated: 2003-10-13
- BIB #bibliographic and descriptive information
 - REACTION
 - (3-LI-6(HE3,P)4-BE-8,PAR,DA)
 - SAMPLE
 - ERR-ANALYS
 - EN-SEC
 - STATUS
- COMMON 4x1 #Constant parameters
 - Legend
 - Data

EN-ERR	E-LVL	DATA-ERR	DATA-ERR1
MEV	MEV	MB/SR	PER-CENT
0.0040	2.9	0.012	20.0
- DATA 3x191
 - Legend

EN	ANG	DATA
	Energy of Incident Projectile, Laboratory System	
ANG	Angle, Laboratory System	
DATA	Partial differential cross section d/dA	
 - Data

EN	ANG	DATA
MEV	ADEG	MB/SR
0.8989	150.0	0.7892

Edit EXFOR: X4±

File Edit View Tools Help About

Edit EXFOR File. Request ⚡

- ENTRY A1495 ⚡ 1956, J.P.Schiffer+ last-updated: 2014-02-26
 - SUBENT A1495001 ⚡ last-updated: 2014-02-26
 - BIB #bibliographic and descriptive information
 - TITLE
 - Study of the reaction mechanism for (He3,p) reactions with Li-6, B-10, and C-13
 - AUTHOR
 - INSTITUTE
 - Acc=[A1495001] Kw=[INSTITUTE] Code:#0 [Edit] [Delete-Code] (1USARIC) #Rice University, Houston, TX, United States of America
 - REFERENCE
 - FACILITY
 - SAMPLE
 - METHOD
 - DETECTOR
 - HISTORY
 - NOCOMMON
 - SUBENT A1495002 ⚡ last-updated: 2014-02-26
 - BIB #bibliographic and descriptive information
 - REACTION

Light EXFOR and ENSDF Editors Projects

- Light EXFOR Editor, 2010-2015 _____/frozen/
 - Web-viewer X4± presents information from EXFOR file as an interactive tree with interpreting codes and data according to EXFOR rules and dictionaries, using also information from NSR database and other sources.
 - Web editor built on top of X4± Web-viewer: nodes of the tree are extended with commands for editing.
 - Editing is implemented via pop-up windows.
- Light ENSDF Editor, 2015-2016 _____/active/
 - ENSDF file is presented as hierarchical document (ensdf±) - interactive tree (graph) with possibility to open/collapse branches and with commands associated with the nodes.
 - User can remove/add/edit nodes, call checking and utility codes, do other useful operations.
 - Editing is implemented via pop-up windows and internal frames.
 - The Editor is called from MyEnsdf Web tool for ENSDF evaluators.
 - Using AJAX technology sharing software infrastructure with Light EXFOR Editor.

ENSDF Web Viewers and Editor

1. `ensdf+` interpreted ENSDF cards
2. `ensdf±` interactive tree-graph
3. `ensdf++` web editor

ENSDF Interpreted (ensdf+)

Original ENSDF text

```

184AU  G 141.8  1 32  4(E1+M2) 0.39  2.42
184AUS  G KC=1.725 25#LC=0.526 8#MC=0.1314 19#NC+=0.0394 6
184AUS  G NC=0.0331 5#OC=0.00595 9#PC=0.000346 5
184AU  cG M      |a(K)exp=1.8 {I5}, (|a(L1)exp+|a(L2)exp)=0.45 {I9},
184AU2cG |a(L3)exp=0.09 {I4} (2005Sa40). M1+E2 (δ=0.59) also possible, but
184AUxcG |D|p=yes from level scheme.
184AU  cG      E|g=141.6 {I3}, I|g=19 {I3} (1978Ne10).
    
```

Interpretation

#Record 2/4 Gamma "141.8" Line:150[7]
 Energy=141.8(±.1)keV
 init.Level:L₆:Energy=228.40(±.07)keV Jπ=3- final.Level:L₃:Energy=86.50(±.08)keV
 Jπ=(2,3)+ [E₆-E₃=141.9; E₆-E₃-E_γ=0.1±0.5σ]



.....help1:[228.4,0.07,141.8,0.1,86.5,0.08]

Relative photon intensity:RI=32(4)

Multipolarity of transition:M=(E1+M2)

Mixing Ratio:MR=0.39

Total conversion coeff.:CC=2.42

#KC=1.725 25

#LC=0.526 8

#MC=0.1314 19

#NC+=0.0394 6 NC=0.0331 5

#OC=0.00595 9

#PC=0.000346 5

M α(K)exp=1.8 {I5}, (α(L1)exp+α(L2)exp)=0.45 {I9}, α(L3)exp=0.09 {I4}
 (2005Sa40). M1+E2 (δ=0.59) also possible, but Δπ=yes from level scheme.

E_γ=141.6 {I3}, I_γ=19 {I3} (1978Ne10).

ENSDF Interpreted (ensdf+)

Limited interactions: collapsing blocks of information, display options

Interpreted ENSDF: ensdf+

by V.Zerkin, IAEA-NDS, 2015-2016, ver-2016-02-04



- ENSDF file ENS4tmp574/184Au.ens

- MASS 184 ^

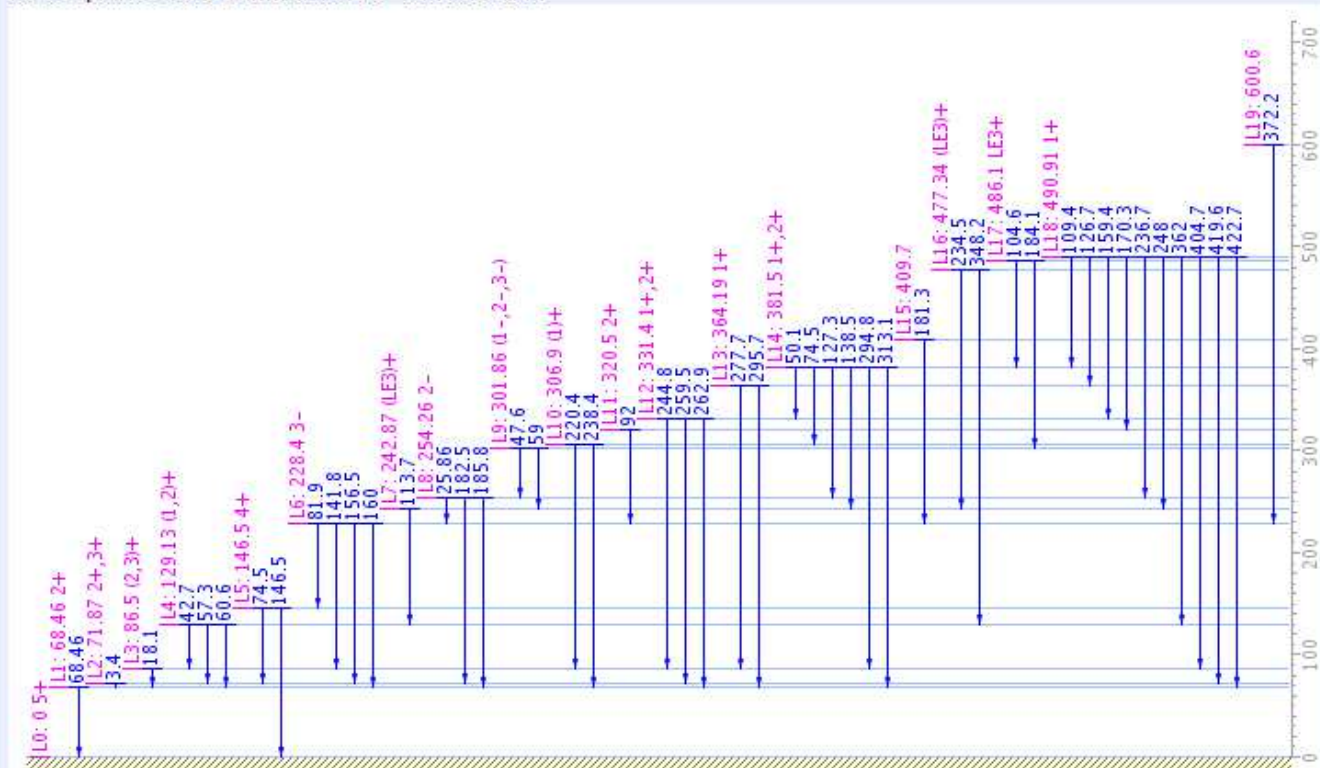
- Nuclide 184AU ^

- Dataset /DECAY/ 184AU [184HG EC DECAY] ^

+ Ident		
+ Hist	H	Record(s): 1
+ GComm	C	Record(s): 8
+ GComm	CE	Record(s): 1
+ GComm	CG	Record(s): 4
+ GComm	CL	Record(s): 3
+ Parent	P	Record(s): 1
+ Norm	N	Record(s): 1
+ PNorm	PN	Record(s): 1
+ UnplacedRadiation	G	Record(s): 12
+ Level	L	Record(s): 20
+ End		

- Show / Hide
- Level bars
 - Gamma bars
 - Interpretation
 - #Record
 - Hierarchy
 - G2L-plot
 - L&G-plot/V
 - L&G-plot/H

Total: Nuclides:1 Datasets:1 Records:110 Cards:359



```

184AU L 0.0 5+ 20.6 S 9
184AU cL T from Adopted Levels.

184AU L 68.46 4 2+ 47.6 S 14 M
184AU cL T from Adopted Levels.

184AU G 68.46 4 0.90 7M3 3.19E3 2.87E+3 23
184AUS G LC=2.29E3 4$MC=694 10$NC+=208 3
184AUS G NC=178 3$OC=29.4 5$PC=0.774 11
184AU cG II from (S(I(|g+ce) to 68 level)=2870 {I230}.
184AU cG RI from I(|g+ce) and Ia.
184AU cG M L3/(L1+L2)=1.6 {I4}, L2<<L1 (1990Ed01);
184AU2cG (L1+L2):L3:M:N:O=232 {I35}:397 {I60}:197 {I30}:45 {I7}:18 {I6}
184AUxcG (2005Sa40).
184AU cG %I|g=0.0303 {I10} assuming recommended decay scheme
184AU2cG normalization.
  
```

#Record 1/20 Level "0.0" Line:88[2]
 Energy=0.0keV Spin and parity:J π =5+ T_{1/2}=20.6(±.9)sec
 T from Adopted Levels.

#Record 2/20 Level "68.46" Line:90[2] Child:1
 Energy=68.46(±.04)keV Spin and parity:J π =2+ T_{1/2}=47.6(±1.4)sec Meta:MS=M
 T from Adopted Levels.

#Record 1/1 Gamma "68.46" Line:92[10]
 Energy=68.46(±.04)keV
 init.Level:L₁.Energy=68.46(±.04)keV J π =2+ final.Level:L₀.Energy=0.0keV J π =5+
 [E₁-E₀=68.46; E₁-E₀-E γ =0-1% of L1 (0.685keV)]



.....help! [68.46,0.04,68.46,0.04,0.0,0.0]
 Relative photon intensity:RI=0.90(7)
 Multipolarity of transition:M=M3

- Show / Hide
- Level bars
- Gamma bars
- Interpretation
- #Record
- Hierarchy
- G2L-plot
- L&G-plotV
- L&G-plotH

**ENSDF
 Interpreted
 (ensdf+)**

ENSDF interactive tree (ensdf±)

Welcome to ENSDF-iTree project

V.Zerkin, IAEA-NDS, 2015-2016, ver-2016-03-15

ENSDF file is presented as an interactive tree with nested structure and possibility to hide/show descriptive information and data.



- show-hide
- cards
- bars
- plot
- shift
- open: nuc, ds, all

ENSDF file ENS4tmp574/184Au.ens

MASS 184

Nuclide 184AU

Dataset /DECAY/ 184AU [184HG EC DECAY] #Lines:359 Records:54

Record Ident

Records H /1/ Hist

Records C /1/ GComm nRecords=8

Records CE /1/ GComm

Records CG /1/ GComm nRecords=4

Records CL /1/ GComm nRecords=3

Records P /2/ Parent

Records N /2/ Norm

Records PN /2/ PNorm

Records G /3/ UnplacedRadiation-G nRecords=12

Records L /4/ Level nRecords=20

Level #1/20 "0.0" Lines:2 Comments:1

Level #2/20 "68.46" Lines:2 Comments:1 Radiations:1

Data Lines:1

184AU L 68.46 4 2+ 47.6 S 14 M

Energy=68.46(±0.04)keV Spin and parity:Jπ=2+ T_{1/2}=47.6(±1.4)sec Meta:MS=M

Comments:1

Radiations:1

Gamma #1/1 "68.46" Lines:10 Comments:4

Data Lines:3

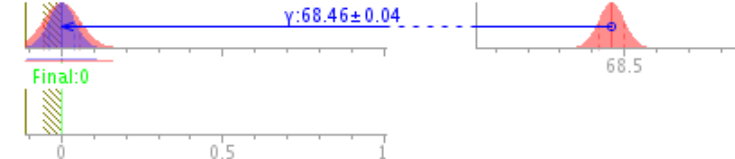
184AU G 68.46 4 0.90 7M3 3.19E3 2.87E+3 23
184AUS G LC=2.29E3 4#MC=694 10#NC+=208 3
184AUS G NC=178 3#OC=29.4 5#PC=0.774 11

Energy=68.46(±0.04)keV

init.Level:L₁:Energy=68.46(±0.04)keV Jπ=2+ final.Level:L₀:Energy=0.0keV Jπ=5+ [E₁-E₀=68.46; E₁-E₀-E_γ=0<1% of L₁ (0.685keV)]

0±0.05657

Init:68.46±0.04



Relative photon intensity:RI=0.90(7)

Multipolarity of transition:M=M3

Total conversion coeff:CC=3.19E3

ENSDF web-editor (ensdf++)

File Edit View History Tools Help About // 184Au.ens

184Au.ens

MASS 184

Nuclide 184AU

Dataset /DECAY/ 184AU [184HG EC DECAY] #Lines:359 Records:54

Record Ident

Records H /1/ Hist

Records C /1/ GComm nRecords=8

Records CL /1/ GComm nRecords=3

Records P /2/ Parent

Records N /2/ Norm

Records PN /2/ PNorm

Records G /3/ UnplacedRadiation-G nRecords=12

Records L /4/ Level nRecords=20

Level #1/20 "0.0 J+ T_{1/2}=20.6 s" Lines:2 Comments:1

Level #2/20 "68.46 (4) 2+ T_{1/2}=47.6 s" Lines:2 Comments:1 EC & radiations:1

Level #3/20 "71.87 (9) 2+,3+" EC & radiations:1

Data Lines:1

Energy=71.87(±.09)keV Spin and parity:J π =2+,3+

Comments:0

EC and radiations:1

Edit record Edit data Remove record Edt EdtCards

Gamma #1/1 "3.4 (2) (M1)" Lines:4 Comments:2

Data Lines:1

Energy=3.4(±.2)keV

init.Level:L₂:Energy=71.87(±.09)keV J π =2+,3+ final.Level:L₁:Energy=68.46(±.04)keV J π =2+ [E₂-E₁]=3.41;



Multipolarity of transition:M=(M1)

Relative total transition intensity:TI= 1.55E3(16)

Comments:2

Light ENSDF Editor

V.Zerkin, IAEA-NDS, 2015-2016, ver-2016-03-15

ENSDF file is presented as an interactive tree with possibility to hide/show/edit information

Implementation of editing

1. Editing in popup window
2. Editing on the main window (build-in frame)
3. Editing original ENSDF and interpreted information
4. Integrated editing (e.g. parallel datasets, all levels)

Editing in pop-up window

Records 1 /4/ Level nRecords=20

- Level #1/20 "0.0 5+ T_{1/2}=20.6 s" Lines:2 Comments:1
- Level #2/20 "68.46 (4) 2+ T_{1/2}=47.6 s" Lines:2 Comments:1
- Level #3/20 "71.87 (9) 2+,3+" EC & radiations:1
- Level #4/20 "86.50 (8) (2,3)+" EC & radiations:1
- Level #5/20 "129.13 (8) (1,2)+" EC & radiations:4
- Level #6/20 "146.50 (12) 4+" EC & radiations:2
- Level #7/20 "228.40 (7) 3- T_{1/2}=69 ns" Lines:4 Comments:1

Data Lines: 1

- Energy=228.40(±.07)keV Spin and parity:J^π=3- T_{1/2}=69 ns

Comments:1

EC and radiations:4

- Gamma #1/4 "81.9 (1) E1" Lines:4 Comments:1
- Gamma #2/4 "141.8 (1) (E1+M2)" Lines:7 Comments:1
- Gamma #3/4 "156.5 (1) E1" Lines:6 Comments:2
- Gamma #4/4 "160.0 (1) (E1)" Lines:5 Comments:1

Buttons: Edit record, Edit data, Remove record, Edt, EdtCard

https://nds121.iaea.org/exfor2/servlet/EnsdfEditCode?x4act=Edit data&id=EnsDomID_0.0.0.0.10.6.R.18kwv...

https://nds121.iaea.org/exfor2/servlet/EnsdfEditCode?x4act=Edit%20data&id=...

Tree-path
...Edit Gamma Line...

Initial Gamma Record (interpreted)
Initial Level: Energy=228.40(±.07)keV Spin and parity:J^π=3- T_{1/2}=69(±6) 10⁻⁹sec
Dataset: "184AU" Operation: "Edit data" "Gamma" Energy=141.8 (keV)

Standard One-Card Record Data

	quantity	op.	value ± uncertainty	
Energy (keV)	E	=	141.8	1 DE
Relative photon intensity	RI	=	32	4 DRI
Multipolarity of transition	M	=	(E1+M2)	
Mixing ratio, δ	MR	=	0.39	DMR
Total conversion coeff	CC	=	2.42	DCC
Relative total transition intensity	TI	=		DTI
Comment Flag	F	=		
Coincidence	C	=		
Uncertain placement in the level scheme	Q	=		

Continuation Records

Data in Continuation Records

	quantity	op.	value [± err.] [op2. value]	reference	initial-text
1)	KC	?	1.725 25		KC=1.725 25
2)	LC	?	0.526 8		LC=0.526 8
3)	MC	?	0.1314 19		MC=0.1314 19
4)	NC+	?	0.0394 6		NC+=0.0394 6
5)	NC	?	0.0331 5		NC=0.0331 5
6)	OC	?	0.00595 9		OC=0.00595 9
7)	PC	?	0.000346 5		PC=0.000346 5

Add data to continous records: [+] [-]

←[Save] ENSDF format: ↓ ↓ ↑ [Reset]

NUCID G E DE RI DRI M MR DMR CC DCC TI DTI FC

184AU G 141.8 1 32 4 (E1+M2) 0.39 2.42

184AUS G KC=1.725 25 LC=0.526 8 MC=0.1314 19 NC+=0.0394 6

184AUS G NC=0.0331 5 OC=0.00595 9 PC=0.000346 5

Editing on the main window

File Edit View History Tools Help About // 184Au.ens

184Au.ens

- MASS 184
- Nuclide 184AU
 - Dataset /DECAY/ 184AU [184HG EC DECAY] #Lines:359 Records:54
 - Record Ident
 - Records H /1/ Hist
 - Records C /1/ GComm nRecords=8
 - Records CE /1/ GComm
 - Records CG /1/ GComm nRecords=4
 - Records CL /1/ GComm nRecords=3
 - Records P /2/ Parent
 - Records N /2/ Norm
 - Records PN /2/ PNorm
 - Records G /3/ UnplacedRadiation-G nRecords=12
 - Records L /4/ Level nRecords=20
 - Level #1/20 "0.0 5+ T_{1/2}=20.6 s" Lines:2 Comments:1
 - Level #2/20 "68.46 (4) 2+ T_{1/2}=47.6 s" Lines:2 Comments:1 EC & radiations:1
 - Level #3/20 "71.87 (9) 2+,3+" EC & radiations:1
 - Level #4/20 "86.50 (8) (2,3)+" EC & radiations:1
 - Level #5/20 "129.13 (8) (1,2)+" EC & radiations:4
 - Data Lines:1
 - Energy=129.13(±.08)keV Spin and parity:J^π=(1,2)⁺
 - Comments:0
 - EC and radiations:4
 - EC #1/4 Lines:2
 - Gamma #2/4 "42.7 (1) M1(+E2)" Lines:4 Comments:1
 - Gamma #3/4 "57.3 (2) E2+M1" Lines:5 Comments:1

Buttons: Edit record, Edit data, Remove record, Edt, Edit radiations

E	DE	J ^π	T	DT	L	S	DS	F	MS	Q
129.13	8	(1,2) ⁺								

[Save] [Reset] [Cancel] Spectroscopic strength for this level

Editing ENSDF cards on the main window

Records 1 /4/ Level nRecords=20 ⚙

- Level #1/20 "0.0 5+ T_{1/2}=20.6 s" Lines:2 Comments:1
- Level #2/20 "68.46 (4) 2+ T_{1/2}=47.6 s" Lines:2 Comments:1 EC & radiations:1
- Level #3/20 "71.87 (9) 2+,3+" EC & radiations:1
- Level #4/20 "86.50 (8) (2,3)+" EC & radiations:1
- Level #5/20 "129.13 (8) (1,2)+" EC & radiations:4

Data Lines: 1

- Energy= 129.13(±.08)keV Spin and parity: J_π=(1,2)+
- Comments:0
- EC and radiations:4
 - EC #1/4 Lines:2
 - Gamma #2/4 "42.7 (1) M1(+E2)" Lines:4 Comments:1
 -

Record: /G/ ENSDF data cards:

NUCID	s	G	E	DE	RI	DRI	M	MR	DK	CC	DCC	TI	TIFC	Q
184AU	G	57.3	2	4		2E2+M1	1.2	AP		40.9	AP			
184AUS	G	IC	AP	30.7	MC	AP	7.91	NC+	AP	2.26				
184AUS	G	NC	AP	1.94	OC	AP	0.312	PC	AP	0.00181				

[Save] [Reset] [Calce]

- Gamma #3/4 "57.3 (2) E2+M1" Lines:5 Comments:1
- Data Lines:3
- Comments:1
- Gamma #4/4 "60.6 (1) M1" Lines:5 Comments:1

Integrated editing

File Edit View History To

- 184Au.ens
 - MASS 184
 - Nuclide 184AU
 - Dataset /DECAY/ 18
 - Record Ident
 - Records H /1/ Hi
 - Records C /1/ G
 - Records CE /1/ GComm
 - Records CG /1/ GComm nRecords=4
 - Records CL /1/ GComm nRecords=3
 - Records P /2/ Parent
 - Records N /2/ Norm
 - Records PN /2/ PNorm
 - Records G /3/ UnplacedRadiation-G nRecords=12
 - Records L /4/ Level nRecords=20
 - Level #1/20 "0.0 5+ T½=20.6 s" Lines:2 Comments:1
 - Level #2/20 "68.46 (4) 2+ T½=47.6 s" Lines:2 Comments:1 EC & radiations:1
 - Level #3/20 "71.87 (9) 2+,3+" EC & radiations:1
 - Level #4/20 "86.50 (8) (2,3)+" EC & radiations:1
 - Level #5/20 "129.13 (8) (1,2)+" EC & radiations:4
 - Level #6/20 "146.50 (12) 4+" EC & radiations:2
 - Level #7/20 "228.40 (7) 3- T½=69 ns" Lines:4 Comments:1 EC & radiations:4

https://nds121.iaea.org/exfor2/servlet/EnsfEditCode?x4act=Edit radiations&id=EnsDomID_0.0.0.0.10.5&kwv=L&M=0&par1=0...
https://nds121.iaea.org/exfor2/servlet/EnsfEditCode?x4act=Edit%20radiations&id=EnsDomID_0.0.0.0.10.5&kwv=L&M=0&par1=0...

Edit Level and corresponding radiations

Nuclide: 184AU Dataset: [184HG EC DECAY]

L#	E	DE	J π	T	DT	L	S	DS	F	MS	Q
L5	146.50	12	4+						<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

EC#	E	DE	IB	DIB	IE	DIE	LOGFT	DFT	TI	DTI	F	UN	Q
											<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

G#	E	DE	RI	DRI	M	MR	DMR	CC	DCC	TI	DTI	F	C	Q
G1	74.5	2	7	4	[M1, E2]			11	8			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G2	146.5	4	24	8	M1 (+E2)			1.8	7			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

[Save][Reset]

[Edit record](#)
[Edit data](#)
[Remove record](#)
[Edt](#)
[Edit radiations](#)

Integrated editing

File Edit View History Tools Help About // 177Lu.ens

- 177Lu.ens
 - MASS 177
 - Add dataset Remove nuclide Parallel view
 - Nuclide 177LU
 - Dataset /ADOPTED/ 177LU [ADOPTED LEVELS, GAMMAS] #Lines:204
 - Dataset /DECAY/ 177LU [177YB B- DECAY] #Lines:187 Records:44
 - Dataset /DECAY/ 177LU [177LU IT DECAY (160.44 D)] #Lines:7
 - Dataset /REACTION/ 177LU [176YB(3HE,D),(A,T)] #Lines:36
 - Dataset /REACTION/ 177LU [176LU(N,G) E=THERMAL] #Lines:148
 - Dataset /REACTION/ 177LU [176LU(D,P)] #Lines:68 Records:59
 - Dataset /REACTION/ 177LU [178HF(T,A)] #Lines:41 Records:39
 - Dataset /REACTION/ 177LU [(HI,XNG)] #Lines:278 Records:84

https://nds121.iaea.org/exfor2/servlet/EnsdEditCode?x4act=Parallel view&id=EnsDomID_0...
~~https://nds121.iaea.org/exfor2/servlet/EnsdEditCode?x4act=Parallel%20view~~

Parallel view of ENSDF datasets

Nuclide: **177LU**

Datasets

#	DSID	nLevels	Lev-Energy	n γ 's	Type
(1)	<input checked="" type="checkbox"/> ADOPTED LEVELS, GAMMAS	204	121 - 2497	331	ADOPTED
(2)	<input type="checkbox"/> 177YB B- DECAY	17	121 - 1337	44	DECAY
(3)	<input type="checkbox"/> 177LU IT DECAY (160.44 D)	7	121 - 970	10	DECAY
(4)	<input type="checkbox"/> 176YB(3HE,D),(A,T)	36		0	REACTION
(5)	<input checked="" type="checkbox"/> 176LU(N,G) E=THERMAL	148	121 - 7072	369	REACTION
(6)	<input type="checkbox"/> 176LU(D,P)	45		0	REACTION
(7)	<input type="checkbox"/> 178HF(T,A)	27		0	REACTION
(8)	<input checked="" type="checkbox"/> (HI,XNG)	65	121 - 2497	118	REACTION

Levels

(1) ADOPTED LEVELS, GAMMAS			(5) 176LU(N,G) E=THERMAL			(8) (HI,XNG)		
#	γ	Energy J_{π}	#	γ	Energy J_{π}	#	γ	Energy J_{π}
0	0	0.0 7/2+	0	0	0.0 7/2+	0	0	0.0 7/2+
1	1	121.6211 9/2+	1	1	121.6296 9/2+	1	1	121.39 9/2+
2	1	150.3967 9/2-	2	1	150.3967 9/2-	2	1	150.43 9/2-
3	2	268.7849 11/2+	3	2	268.8023 11/2+	3	2	268.69 11/2+
4	1	289.0114 11/2-	4	1	289.0114 11/2-	4	1	289.24 11/2-
5	2	440.6424 13/2+	5	2	440.67 13/2+	5	2	440.44 13/2+
6	2	451.5117 13/2-	6	2	451.5117 13/2-	6	2	451.59 13/2-
7	2	457.9807 3/2+	7	2	457.9807 3/2+	7	2	457.98 3/2+
8	5	552.0985 7/2+	8	5	552.0985 7/2+	8	3	552.05 7/2+
9	2	569.7068 1/2+	9	2	569.7068 1/2+	9	1	569.7 1/2+
10	2	573.6422 3/2+	10	2	573.6422 3/2+	10	1	573.55 3/2+
11	2	636.2028 15/2+	11	2	636.2411 15/2+	11	2	636.11 15/2+
12	2	637.1101 15/2-	12	2	637.1101 15/2-	12	2	637.33 15/2-
13	7	671.9485 9/2+	13	7	671.9485 9/2+	13	5	671.86 9/2+
14	4	709.4533 5/2+	14	4	709.4533 5/2+	14	2	709.39 5/2+
15	3	720.8199 7/2+	15	3	720.8199 7/2+	15	1	720.72 7/2+
16	1	760.81 3/2+	16	1	760.81 3/2+	16	4	761.62 3/2-
17	5	761.7001 5/2-	17	5	761.7001 5/2-	17	1	811.32 9/2-
18	2	795.24 (1/2-)	18	2	795.24 (1/2-)	18	4	816.54 11/2+
19	5	811.4523 9/2-	19	5	811.4523 9/2-	19	2	844.97 17/2-
20	5	816.7042 11/2+	20	5	816.7042 11/2+	20	2	854.01 17/2+

Gammas

(1) ADOPTED LEVELS, GAMMAS			(5) 176LU(N,G) E=THERMAL			(8) (HI,XNG)		
5: 440.6424 13/2+			5: 440.67 13/2+			5: 440.44 13/2+		
1) γ : 171.8574 6 46.0 12			1) γ : 171.868 1 38 4			1) γ : 171.7	173	10
2) γ : 319.0210 6 100 3			2) γ : 319.040 1 83 8			2) γ : 319.1	320	14
19: 811.4523 9/2-			19: 811.4523 9/2-			1) γ : 49.7		36 14
1) γ : 49.740 4 8.2 4			1) γ : 49.740 4 0.91 4					
2) γ : 90.647 6 1.0 5			2) γ : 90.647 6 0.11 6					
3) γ : 542.652 5 33 4			3) γ : 542.652 5 3.7 4					
4) γ : 689.824 5 100 11			4) γ : 689.824 5 11.1 12					
5) γ : 811.483 14 29 8			5) γ : 811.483 14 3.2 9					

Concluding remarks

1. Light Web editors are still “experimental projects”
2. There are still “technological questions”
3. Clear outline of the tasks (and users) is needed
4. Demand?

Thank you.