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

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Workshop on EXFOR Compilation, 24-28 October 2016, IAEA, Vienna

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)

Russia
Nuclear Data Services
"Atomstandart"
//Rosatom//
Moscow

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:

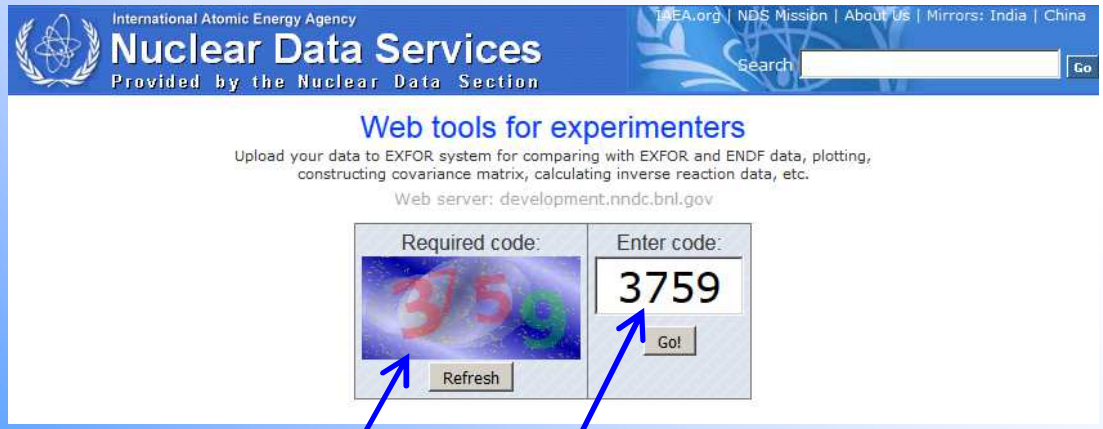
- stopped web downloading of “Portable Empire for Windows” (problem with Tcl/Tk license)

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 - ?

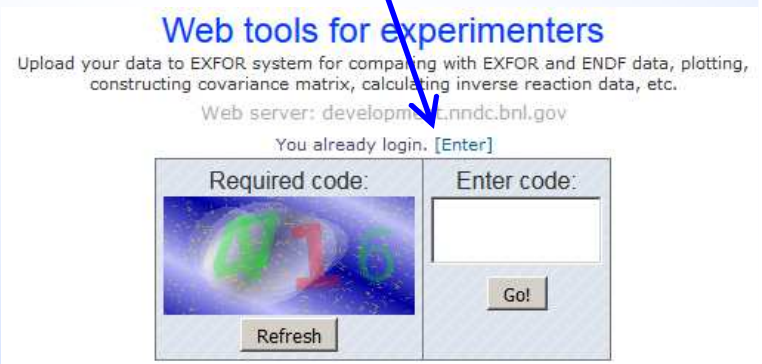
First entrance



Random number

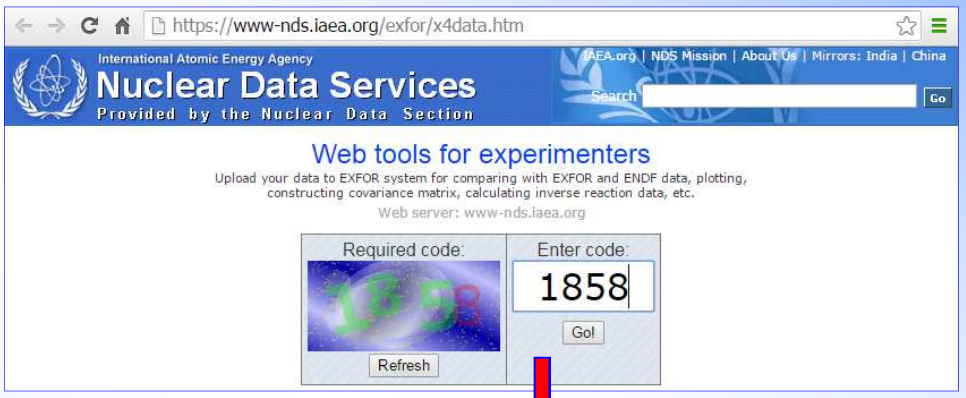
User’s input

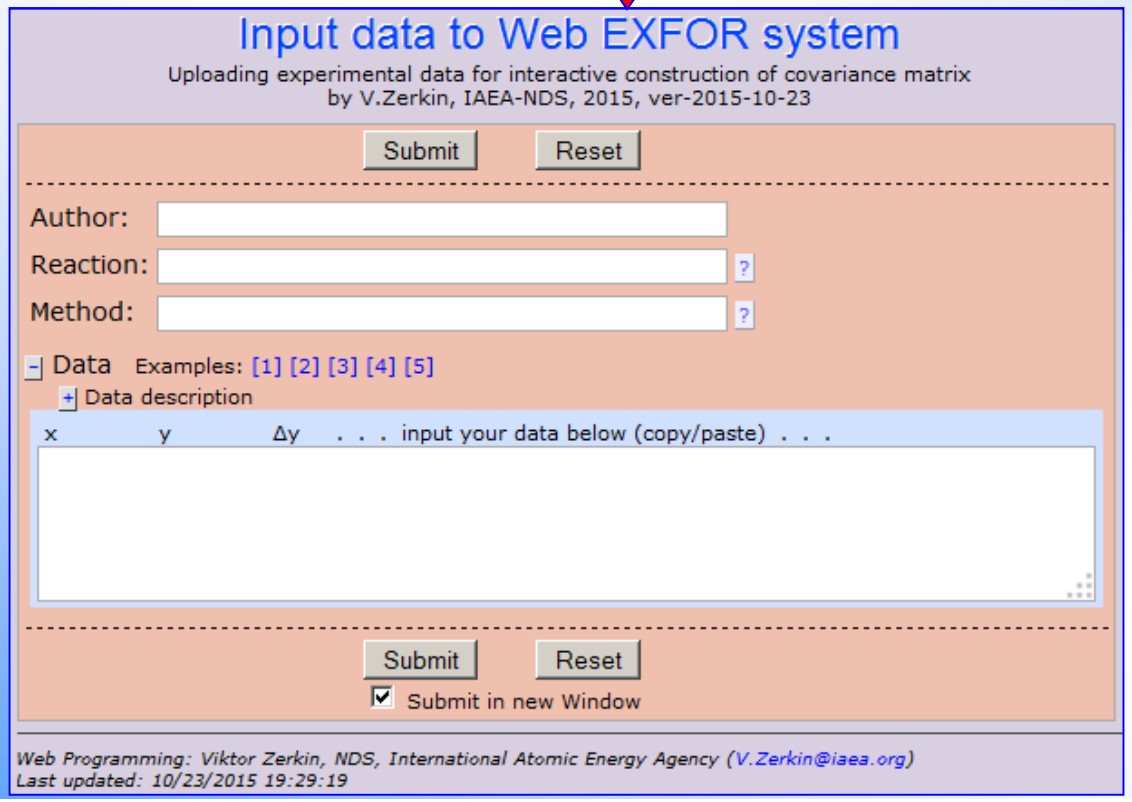
Second entrance



Uploading your experimental data

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





Uploading your experimental data /cont./

Submit Reset

Author: C.Sage, at al.

Reaction: 95-AM-241(N,2N)95-AM-240,,SIG ?

Method: TOF ?

- Data Examples: [1] [2] [3] [4] [5]

- Data description

Uncertanties Δy : nn- | nn++ ; 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 Reset

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	+ uploaded X4 X4± Cov	2016	C.Sage+	8.34e6 2.061e7	9	+ W,SAGE,20160622
2	+ i X4 X4+ X4± T4 Cov	2016	A.Kalamara+	1.00e7 1.71e7	4	[pdf]+ J,PR/C,93,014610,2016

Data flow

Experimentalist

Input your experimental data

EXFOR file

Compiler

Input EXFOR file

Uploading

User

Input criteria for search

EXFOR Request

EXFOR Search

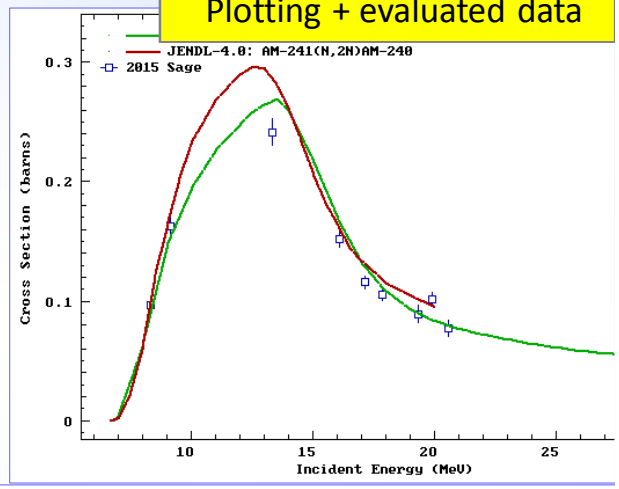
Database

Retrieve

Plotting

ENDF Retrieval

Plotting + evaluated data



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

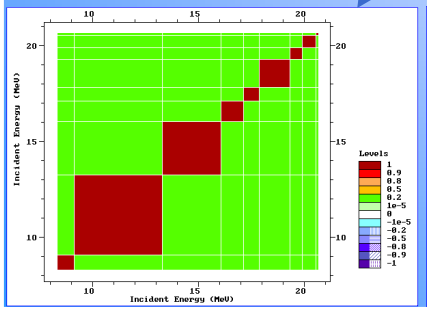
Re-normalization

Constructing covariance matrices

Calculation of inverse reaction cross sections

Plotting

Save/restore recipe.xml



#ENDF Am-241 MT16:2n

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

	X (MeV)										
Y (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" koeff="0.5" />
    <defineErr name="myErr-1" type="myErr" cmd="Setup" src="Systematic" koeff="0.5" />
    <defineErr name="myErr-2" type="myErr" cmd="Setup" src="Systematic" koeff="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

Request #149
Access-Level=2 /pdf/
Results: Reactions: 10 Datasets: 14

Data Selection

Retrieve ◉ Selected ○ Unselected

Output: ☑ X4+ ☑ EXFOR ☑ Bibl

X4PDF collection.

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

-	-	-	-	-	-	1896:3	-	1898:4	1899:1	[1890-1899]
1910:2	1911:2	1912:1	-	-	-	-	-	1918:1	1919:1	[1910-1919]
1920:2	1921:1	-	-	1924:1	-	-	-	1928:2	1929:3	[1920-1929]
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

PDF's by contributors for checking

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

1) 20120000_Joann	/3678/	16) 20160328_Rodionov	/328/
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/

2016

1. J,APP/B,47,789,2016 Jour: Acta Physica Polonica, Part B, Vol.47, p.789 (2016) [pdf] DOI: 10.5506/APhys
NSR: 2016DI02 [pdf] NSR-Reference: Acta Phys.Pol. B47, 789 (2016)
Measurement of the ^{236}U(n,f) Cross Section with the MicroMegas Detector
M.Diakaki, A.Kalamara, M.Kokkoris, G.Marangonli, 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/APhys
NSR: 2016MA18 [pdf] NSR-Reference: Acta Phys.Pol. B47, 841 (2016)
Study of the Near-barrier Scattering of ^{8}He 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.Standylo, 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/APhys
NSR: 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.Krzysiek, and the AGATA Collaboration

4. J,ARI,107,391,2016 Jour: Applied Radiation and Isotopes, Vol.107, p.391 (2016) [pdf] EXFOR: D4333 DO
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 applicatio
F.Tarkanyi, F.Ditroi, A.Hermanne, S.Takacs, M.Baba

5. J,ARI,110,109,2016 Jour: Applied Radiation and Isotopes, Vol.110, p.109 (2016) [pdf] EXFOR: D4334 DO

Contributions to NSR PDF database as of 22 October 2016

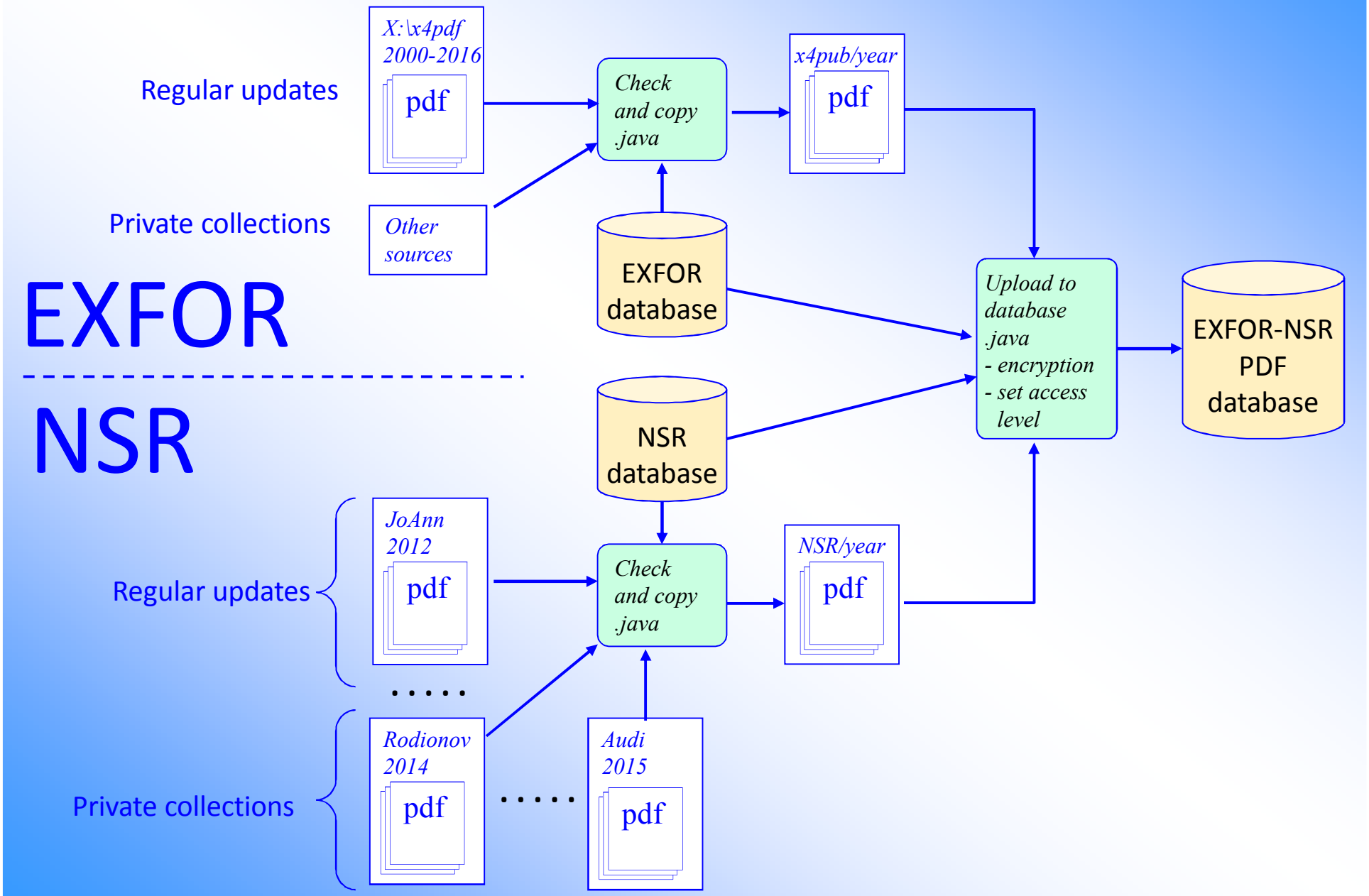
1)	20120000_Joann /3678/	16)	20160328_Rodionov /328/	31)	20161021_Joann /15/
2)	20130000_Joann /1011/	17)	20160328_Shulyak.AB /1360/		
3)	20140000_Joann /591/	18)	20160328_Shulyak.CE /1591/		
4)	20150000_Joann /439/	19)	20160328_Shulyak.FGH /704/		
5)	20151000_Joann /94/	20)	20160328_Shulyak.IJ /2454/		
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

Workshop on EXFOR Compilation, 24-28 October 2016, IAEA, Vienna

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

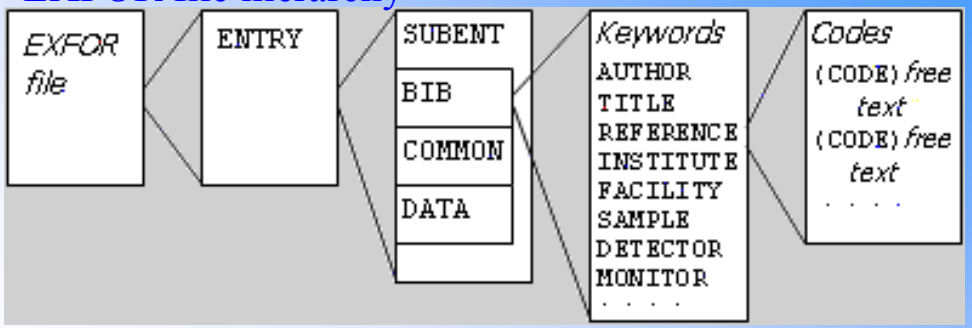
EXFOR file

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

EXFOR logic

```
ENTRY
  SUBENT
    BIB
      AUTHOR
      TITLE
      REFERENCE
      ......
    ENDBIB
    ......
  ENDSUBENT
  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	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

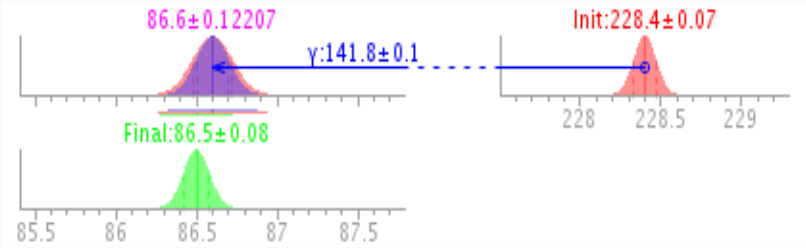
ENSDF Interpreted (ensdf+)

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 (|d=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:L_6:Energy=228.40(±.07)keV Jπ=3- final.Level:L_3:Energy=86.50(±.08)keV
Jπ=(2,3)+ [E_6-E_3=141.9; E_6-E_3-Eγ=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 transaction: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.

Eγ=141.6 {I3}, Iγ=19 {I3} (1978Ne10).

ENSDF Interpreted (ensdf+)

Limited interactions: collapsing blocks of information, display options

Interpreted ENSDF: ensdf+

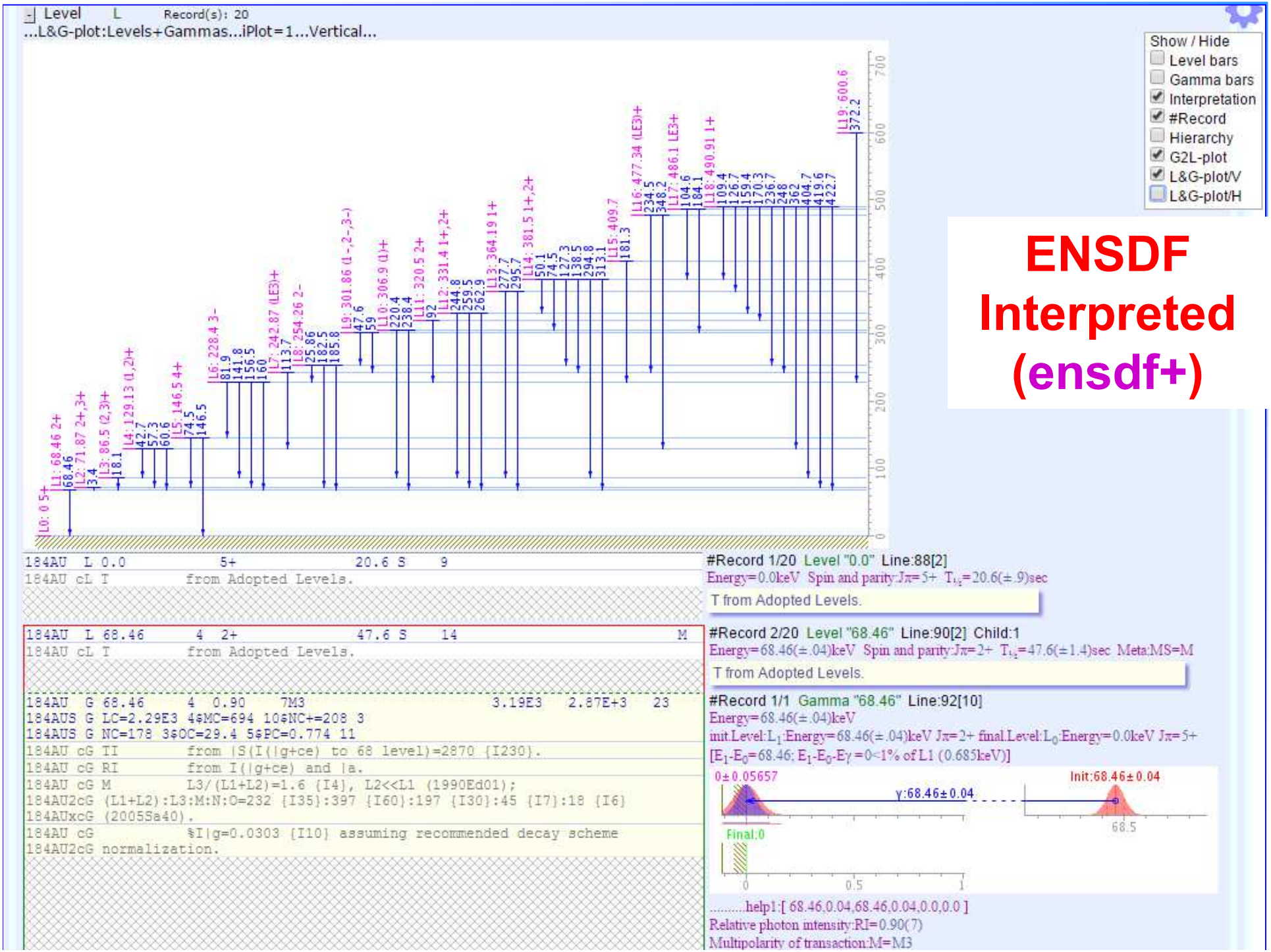
by V.Zerkin, IAEA-NDS, 2015-2016, ver-2016-02-04

- 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
- [x] Interpretation
- [x] #Record
- [ ] Hierarchy
- [x] G2L-plot
- [x] L&G-plot/V
- [ ] L&G-plot/H

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


Level L Record(s): 20
...L&G-plot:Levels+Gammas...iPlot=1...Vertical...
Show / Hide
Level bars
Gamma bars
Interpretation
#Record
Hierarchy
G2L-plot
L&G-plot/V
L&G-plot/H
ENSDF
Interpreted
(ensdf+)
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 TI from |S(I(|g+ce) to 68 level)=2870 {I230}.
184AU cG RI from I(|g+ce) and |a.
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:Jπ=5+ T½=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:Jπ=2+ T½=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 Jπ=2+ final.Level:L0:Energy=0.0keV Jπ=5+
[E1-E0=68.46; E1-E0-Eγ=0<1% of L1 (0.685keV)]
0±0.05657
γ:68.46±0.04
Init:68.46±0.04
Final:0
help1:[68.46,0.04,68.46,0.04,0.0,0.0]
Relative photon intensity:RI=0.90(7)
Multipolarity of transaction:M=M3

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
- [x] cards
- [ ] bars
- [x] plot
- [x] 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
```

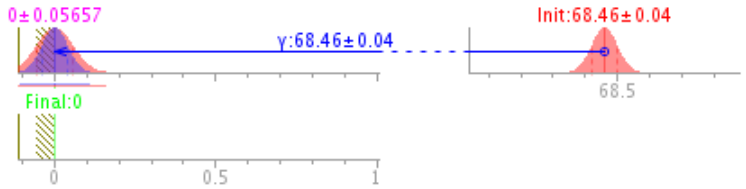
Energy=68.46(±.04)keV Spin and parity:Jπ=2+ $T_{½}$=47.6(±1.4)sec Meta:MS=M

- 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(±.04)keV

init.Level:L_1:Energy=68.46(±.04)keV Jπ=2+ final.Level:L_0:Energy=0.0keV Jπ=5+ [E_1-E_0=68.46; E_1-E_0-Eγ=0<1% of L1 (0.685keV)]



Relative photon intensity:RI=0.90(7)

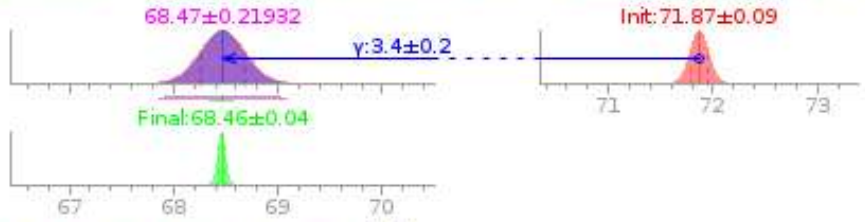
Multipolarity of transaction:M=M3

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 *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
            - Data Lines:1
              - Energy=71.87(±.09)keV Spin and parity:Jπ=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:L_2:Energy=71.87(±.09)keV Jπ=2+,3+ final.Level:L_1:Energy=68.46(±.04)keV Jπ=2+ [E_2-E_1=3.41;



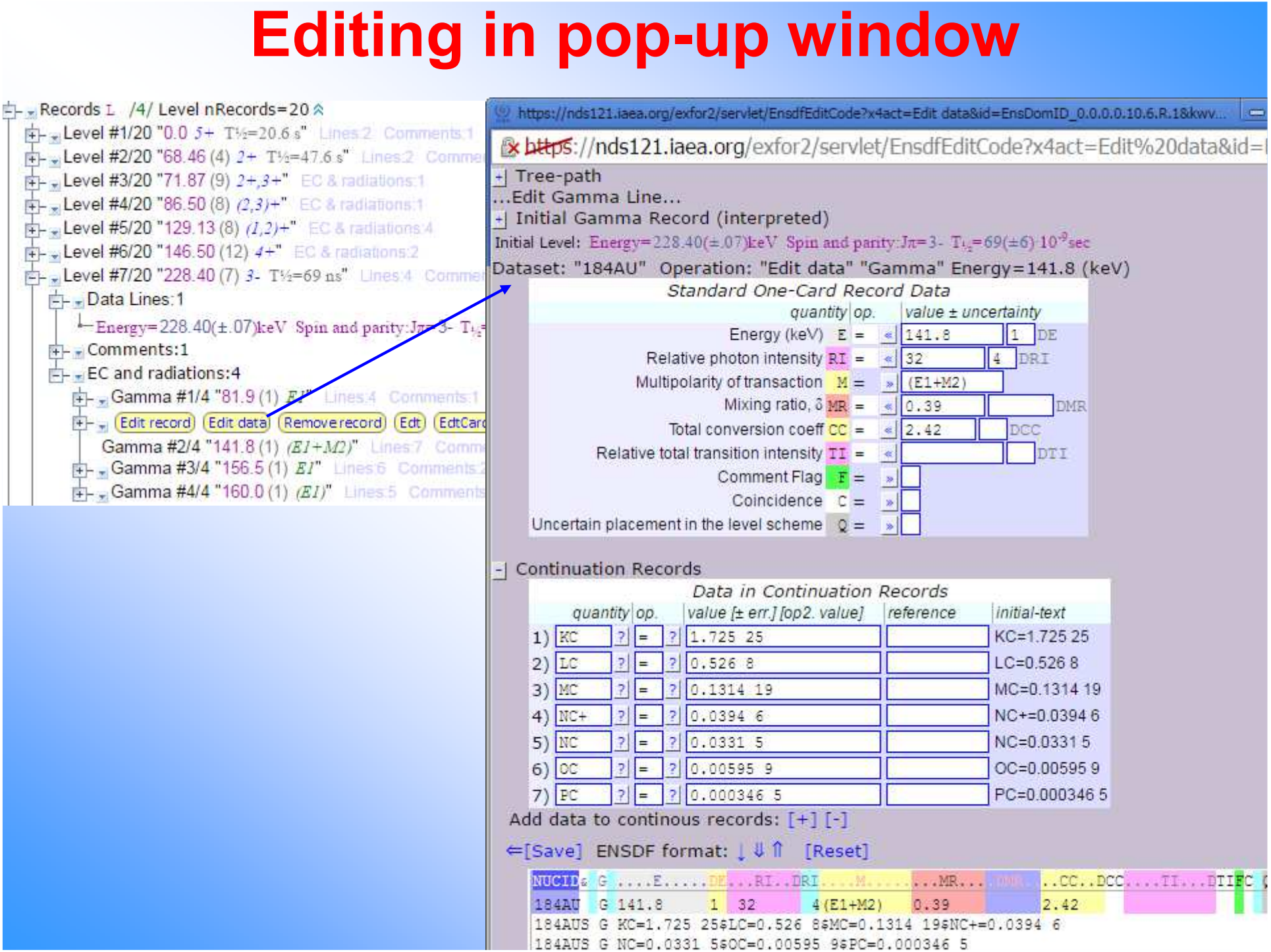
Multipolarity of transaction:M=(M1)
Relative total transition intensity:TI=1.55E3(16)
Comments:2

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

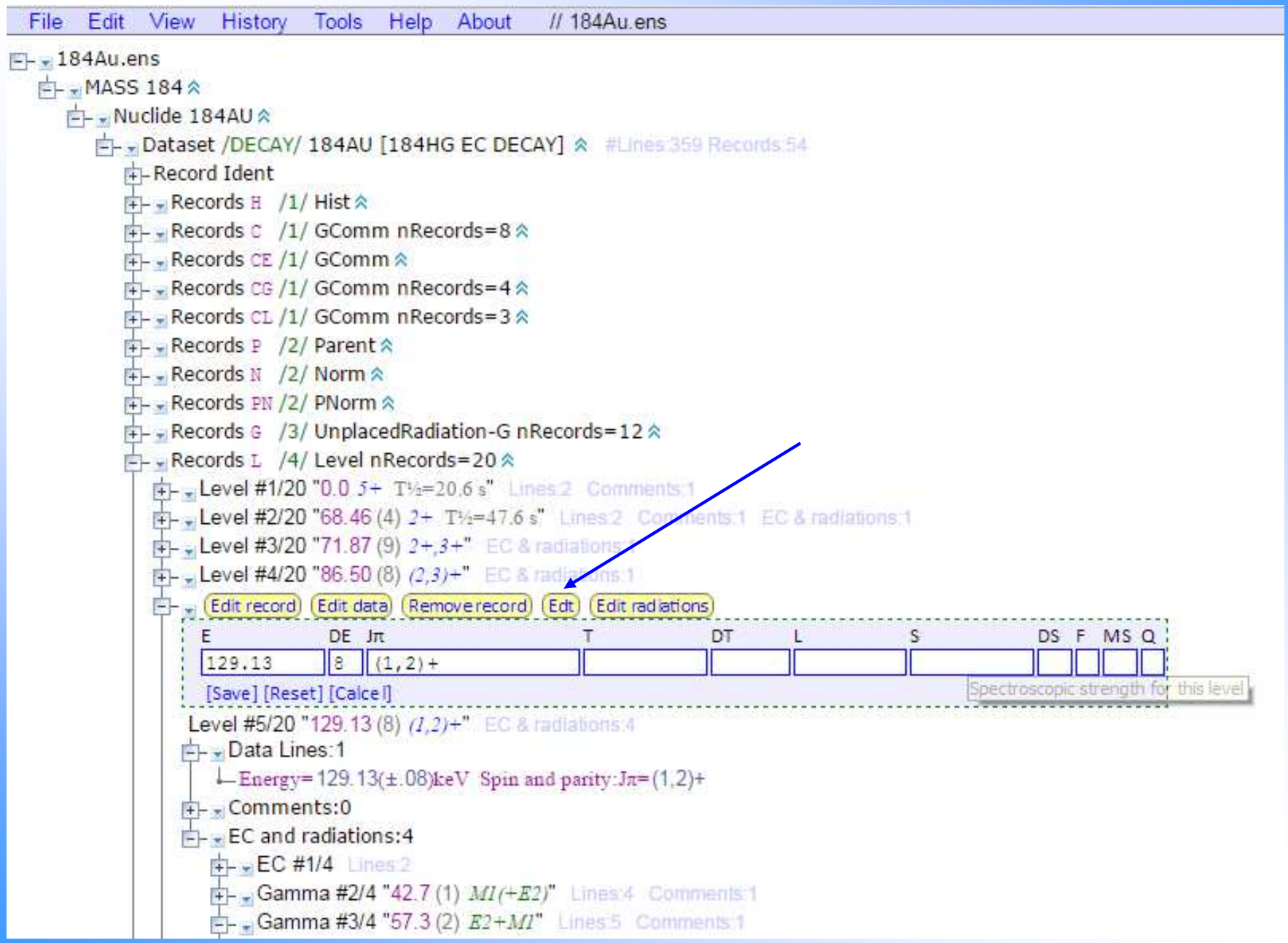
Implementation of editing

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

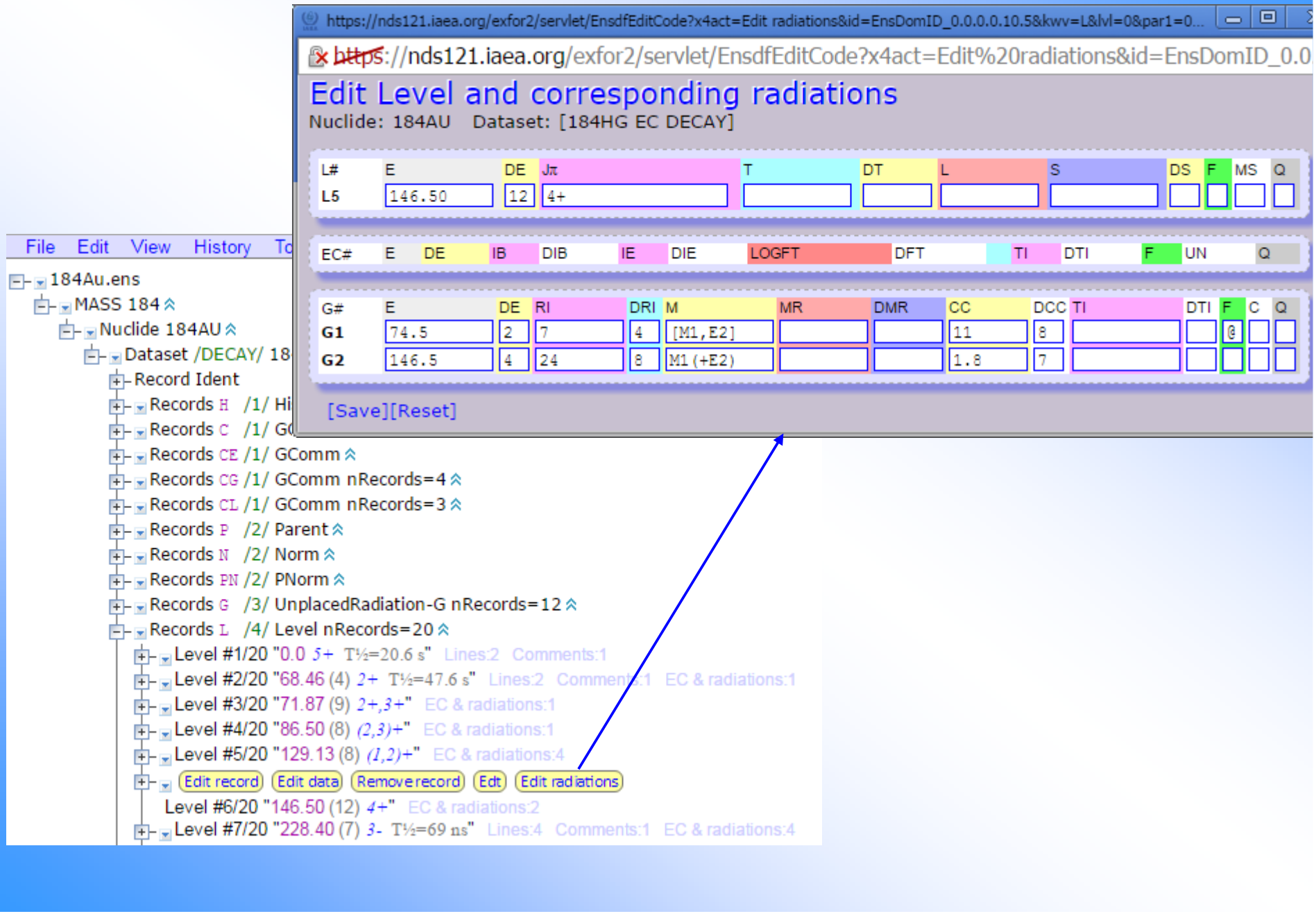


Editing on the main window

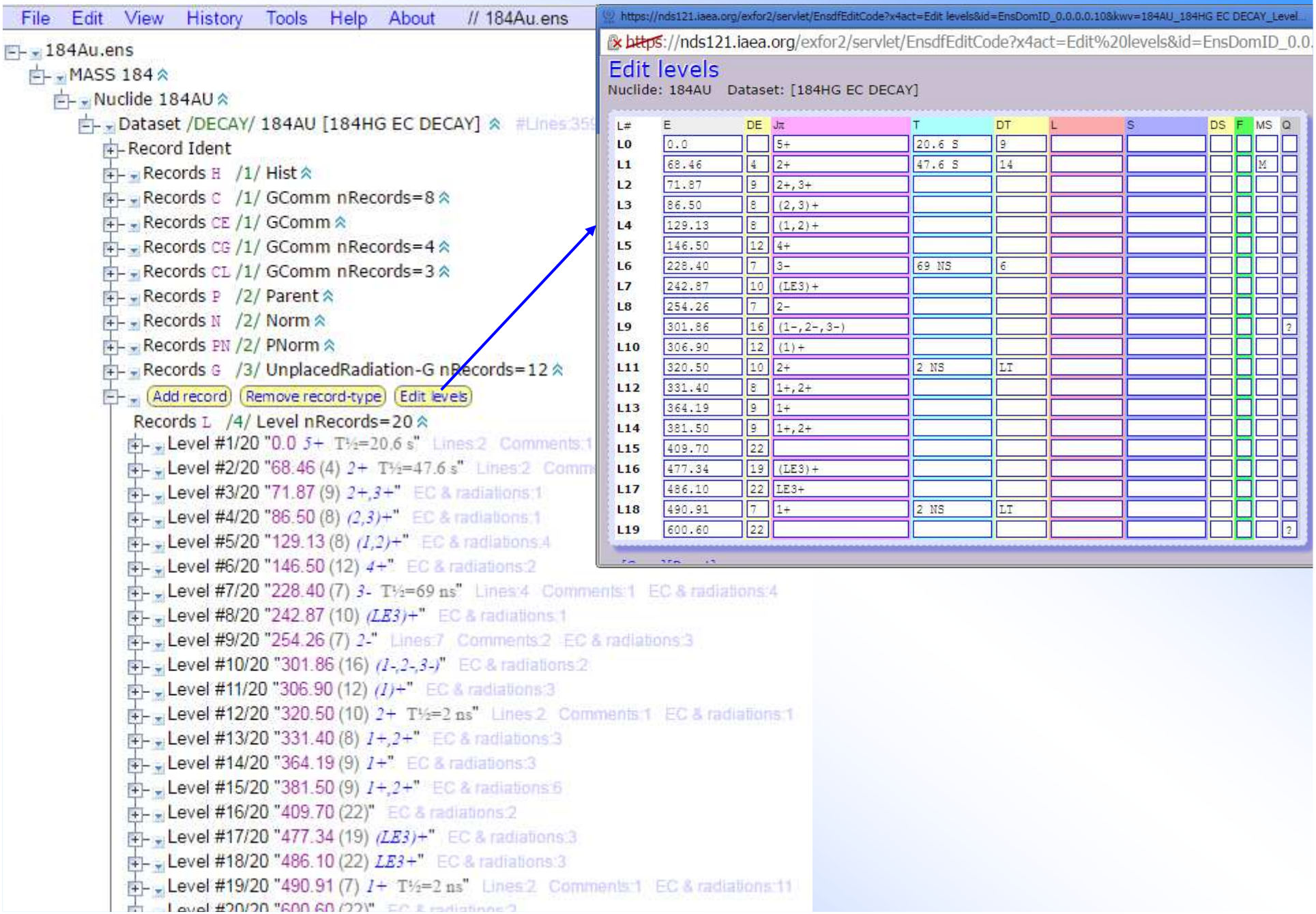


Editing ENSDF cards on the main window

Integrated editing

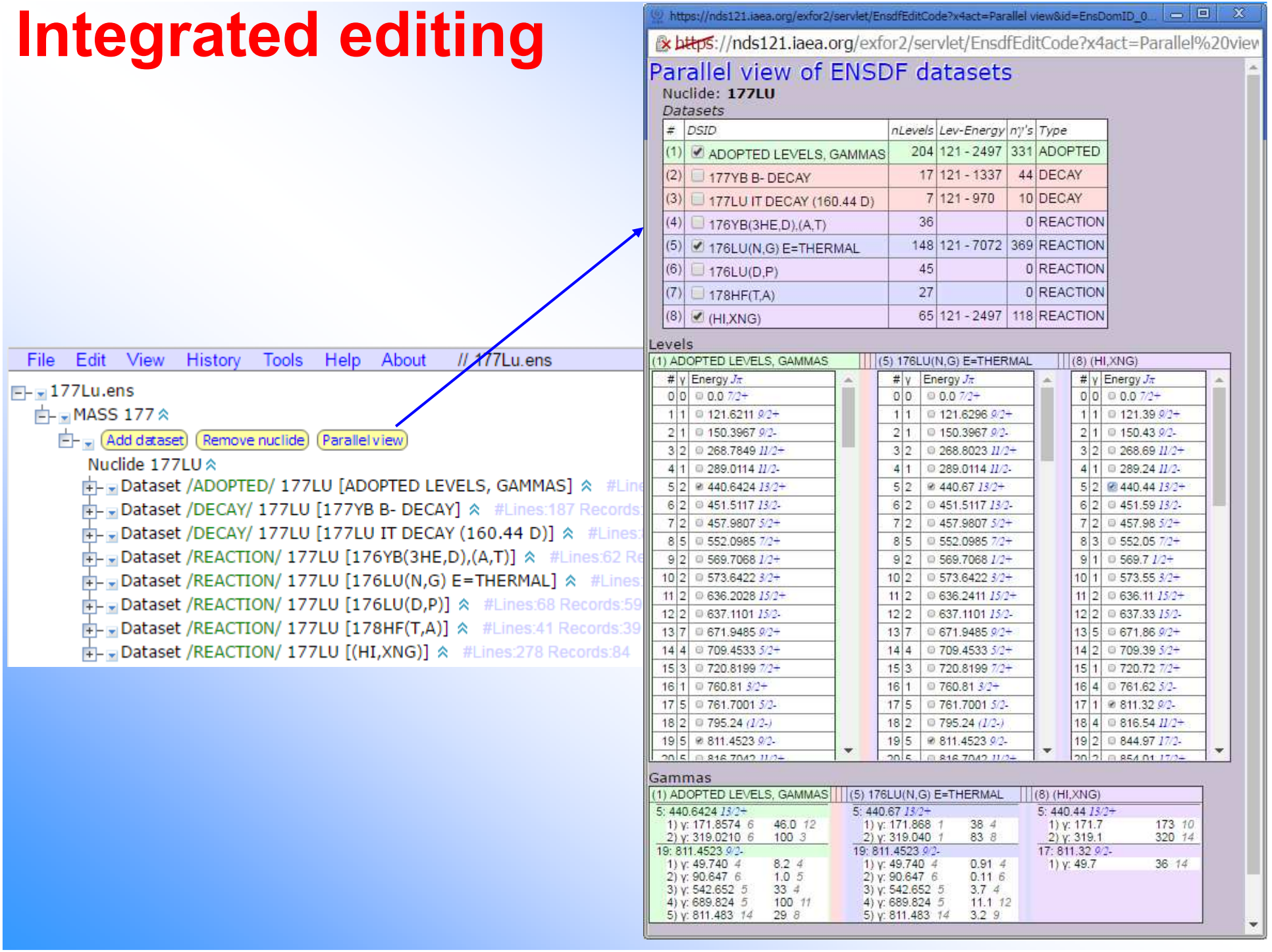


Integrated editing



L#	E	DE	Jπ	T	DT	L	S	DS	F	MS	Q
L0	0.0		5+	20.6 S	9						
L1	68.46	4	2+	47.6 S	14					M	
L2	71.87	9	2+,3+								
L3	86.50	8	(2,3)+								
L4	129.13	8	(1,2)+								
L5	146.50	12	4+								
L6	228.40	7	3-	69 NS	6						
L7	242.87	10	(LE3)+								
L8	254.26	7	2-								
L9	301.86	16	(1-,2-,3-)								?
L10	306.90	12	(1)+								
L11	320.50	10	2+	2 NS	LT						
L12	331.40	8	1+,2+								
L13	364.19	9	1+								
L14	381.50	9	1+,2+								
L15	409.70	22									
L16	477.34	19	(LE3)+								
L17	486.10	22	LE3+								
L18	490.91	7	1+	2 NS	LT						
L19	600.60	22									?

Integrated editing



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.

Citing of the materials of this presentation should be done with proper acknowledgement of the IAEA and author