Recent progress in MyEnsdf Web tools for ENSDF evaluators

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Topics

Login to MyEnsdf

- Dual Login: Guest and Evaluator

PDF system

- EXFOR-NSR PDF database project.
- Functioning PDF database
- Access to database, contributions, statistics

MyEnsdf

- Current contents and recently added codes
- Future options

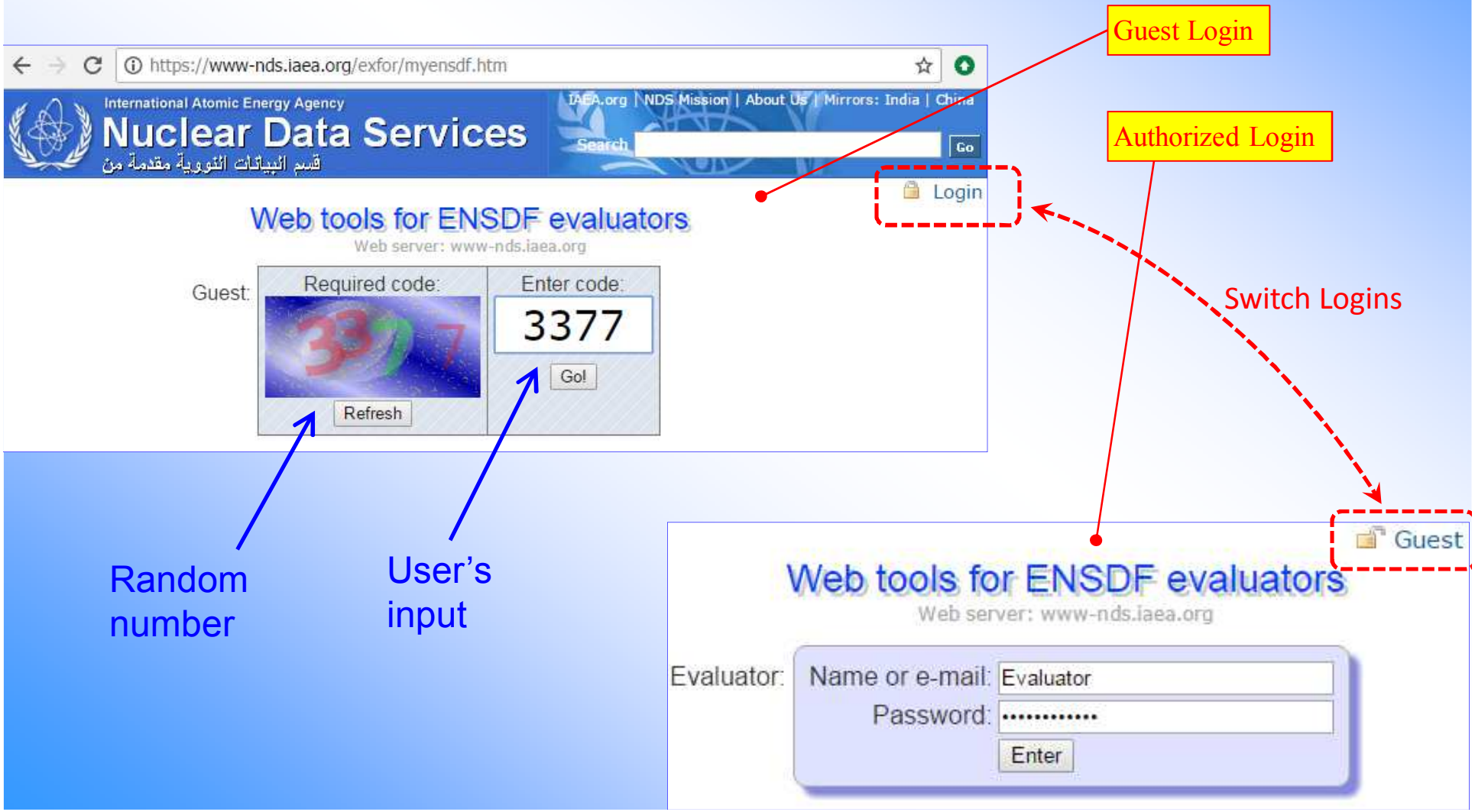
ENSDF Web Viewers and Editor

- ENSDF interpreted cards
- ENSDF interpreted interactive tree
- ENSDF Web-editor

Dual Login to MyEnsdf

MyEnsdf login modes: Guest and Evaluator

- Guest: we check only that user is "human" (to stop using robots)
- Evaluator: authorized entrance (registration via e-mail to NDS or NNDC).
  The same as Guest + Web Editor.
  Additional authorization is needed to access PDF database.

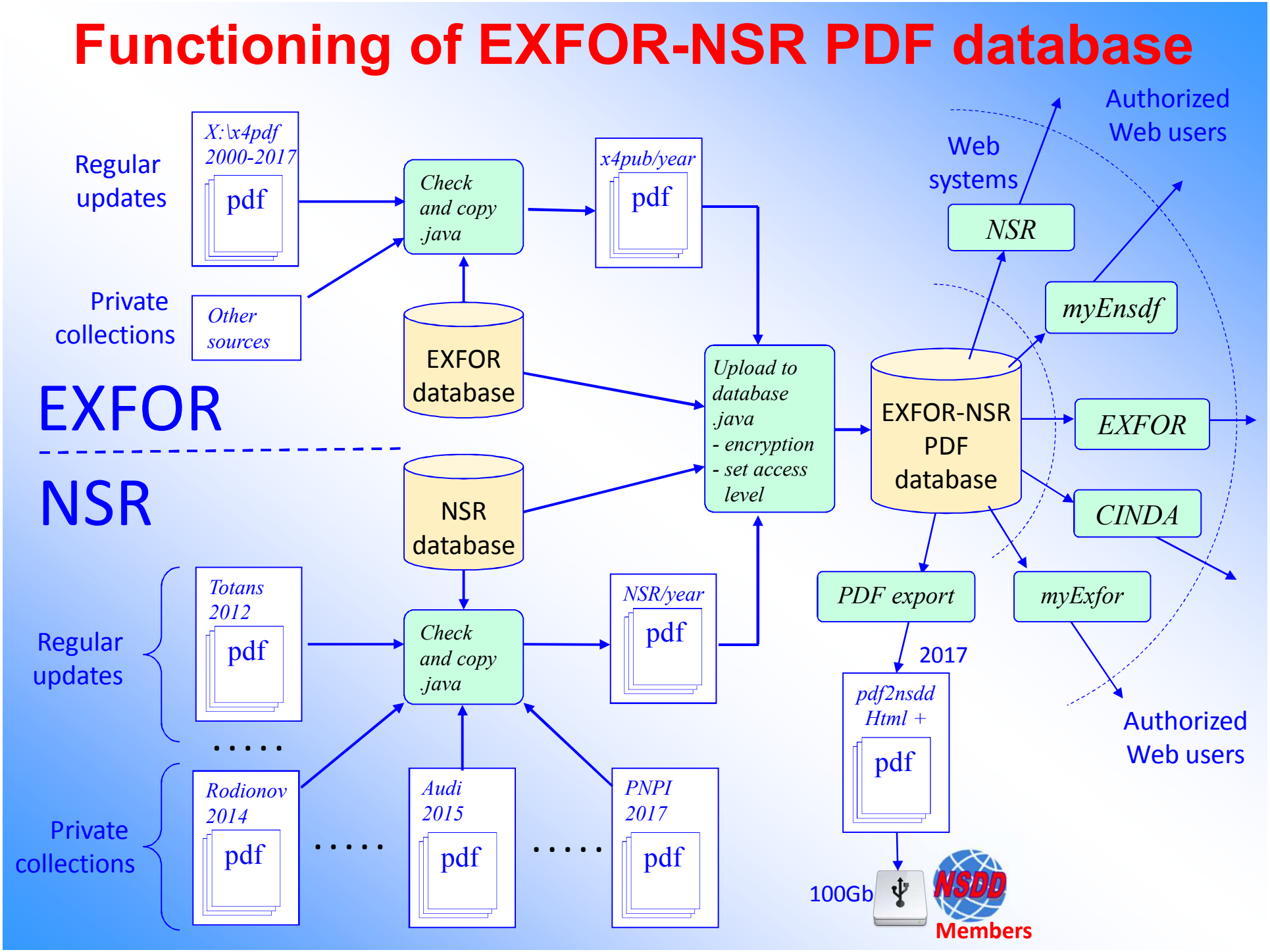


Part I.

EXFOR-NSR PDF database

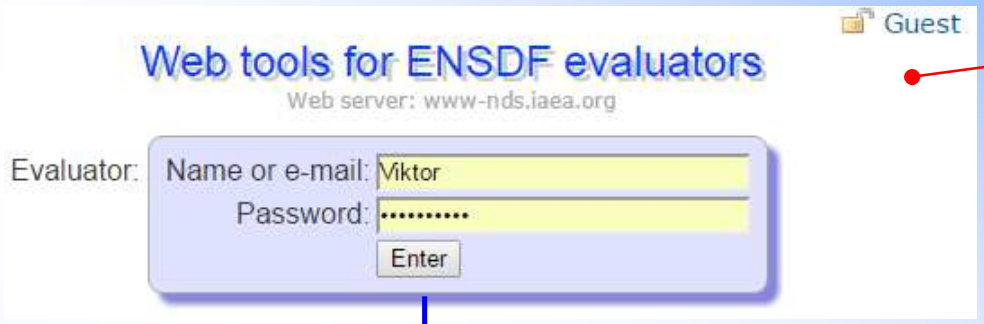
/Common NNDC-NDS project/

Functioning of EXFOR-NSR PDF database

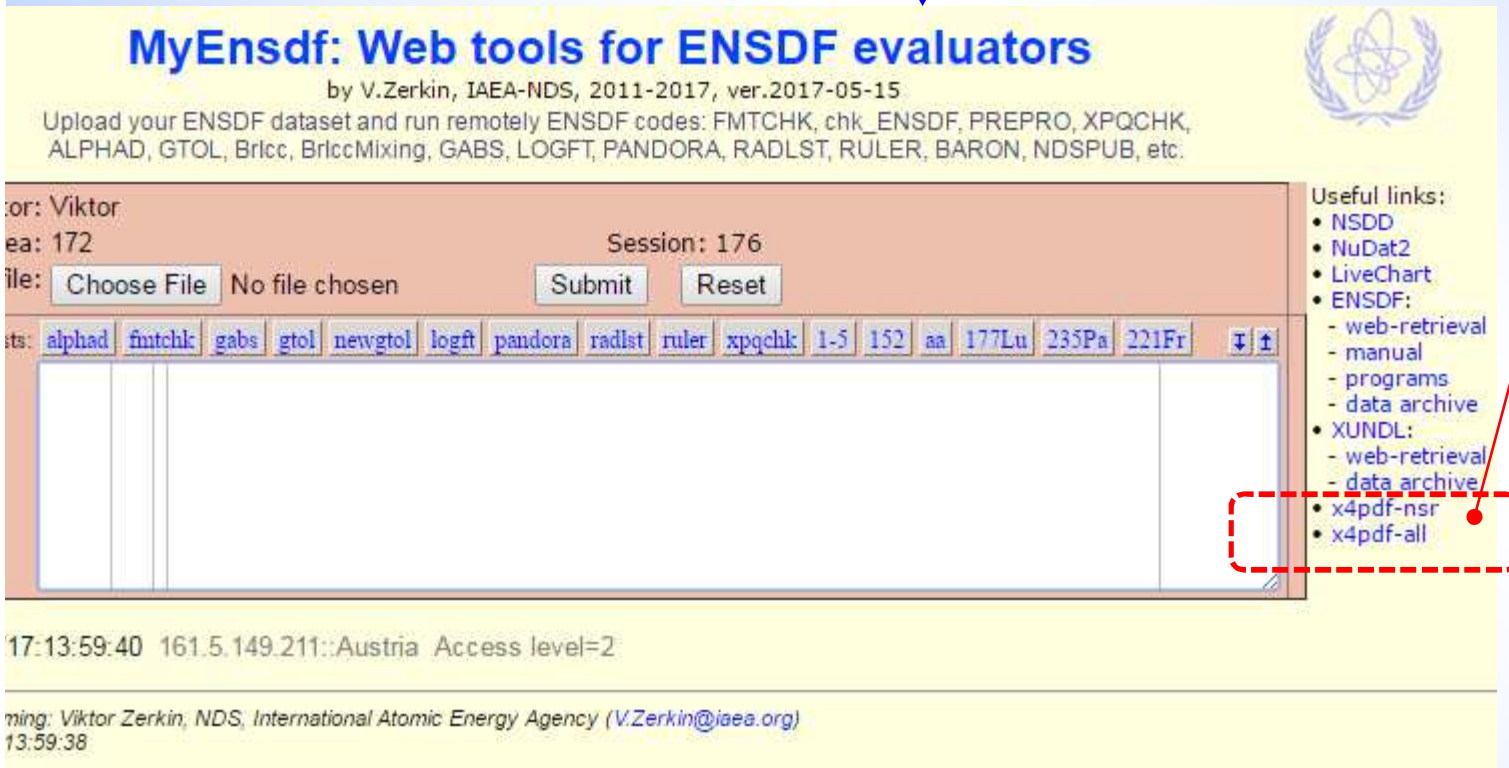


Access to full EXFOR-NSR PDF Database

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



1) Enter to MyEnsdf as Evaluator



2) Go to PDF database:
- NSR PDF database
- Joined EXFOR-NSR database

Joined EXFOR-NSR PDF database by years

X4-NSR PDF collection.

Database updated: 2017-05-12. Files: 101637 from 2000-04-19 to 2017-05-12.

Total: 101637 files from 2000-04-19 to 2017-05-12. NSR files: 73875 files

-	-	-	-	-	-	1896:3	-	1898:4	1899:1	[1890-1899]:8
1910:4	1911:2	1912:1	-	-	-	-	-	1918:2	1919:1	[1910-1919]:10
1920:2	1921:2	-	-	1924:1	-	-	-	1928:4	1929:4	[1920-1929]:13
1930:2	1931:3	1932:5	1933:2	1934:4	1935:20	1936:18	1937:31	1938:29	1939:58	[1930-1939]:172
1940:52	1941:40	1942:18	1943:14	1944:19	1945:23	1946:74	1947:148	1948:161	1949:286	[1940-1949]:835
1950:386	1951:418	1952:379	1953:469	1954:544	1955:587	1956:658	1957:677	1958:901	1959:881	[1950-1959]:5900
1960:969	1961:1009	1962:1214	1963:1523	1964:1377	1965:1593	1966:1708	1967:1251	1968:1292	1969:2191	[1960-1969]:14127
1970:1814	1971:1953	1972:1651	1973:2047	1974:1614	1975:1449	1976:1402	1977:1360	1978:1401	1979:1545	[1970-1979]:16236
1980:1432	1981:1419	1982:1302	1983:1221	1984:1224	1985:1215	1986:1290	1987:1028	1988:1093	1989:1068	[1980-1989]:12292
1990:1257	1991:1072	1992:1118	1993:1344	1994:1540	1995:2144	1996:2050	1997:2133	1998:2193	1999:2396	[1990-1999]:17247
2000:2554	2001:1802	2002:1941	2003:1846	2004:2326	2005:2404	2006:2497	2007:3026	2008:2141	2009:1924	[2000-2009]:22461
2010:1904	2011:2129	2012:2069	2013:1919	2014:1747	2015:1714	2016:760	2017:94			[2010-2017]:12336

Years: 101 Publications: 101637

Full volumes: [conferences and books] [theses] [reports]

Checking mode //contributions to NSR-PDF

PDF's by years and decades with reference, title, authors, link to NSR, publishers web sites

Filter and check:

1) 201200_Totans	/3662/	16) 20170322_PNPI	/11229/
2) 201300_Totans	/1000/	17) 20170327_PNPI	/305/
3) 201400_Totans	/559/	18) 201703_Totans	/374/
4) 201500_Totans	/618/	19) 201704_Totans	/117/
5) 201510_Balraj	/263/	20) 201704_Zerkin	/132/
6) 201510_nndc2corr	/11/	21) 20170508_Kondev	/44/
7) 201510_Rodionov	/2620/	22) 20170512_Zerkin	/31/
8) 201512_Audi	/2626/	23) 201705_Totans	/841/
9) 201600_Totans	/2065/		
10) 201603_Rodionov	/325/		
11) 201603_Shulyak	/13469/		
12) 201604_Kondev	/1145/		
13) 201611_PNPI	/31969/		
14) 201701_Totans	/284/		
15) 201702_Totans	/186/		

Sum: /73875/

PDF's by contributors for checking

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.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/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 D
   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

Contributions to NSR PDF database as of 2017-05-16

1) 201200_Totans	/3662/	16) 20170322_PNPI	/11229/
2) 201300_Totans	/1000/	17) 20170327_PNPI	/305/
3) 201400_Totans	/559/	18) 201703_Totans	/374/
4) 201500_Totans	/618/	19) 201704_Totans	/117/
5) 201510_Balraj	/263/	20) 201704_Zerkin	/132/
6) 201510_nndc2corr	/11/	21) 20170508_Kondev	/44/
7) 201510_Rodionov	/2620/	22) 20170512_Zerkin	/31/
8) 201512_Audi	/2626/	23) 201705_Totans	/841/
9) 201600_Totans	/2065/		
10) 201603_Rodionov	/325/		
11) 201603_Shulyak	/13469/		
12) 201604_Kondev	/1145/		
13) 201611_PNPI	/31969/		
14) 201701_Totans	/284/		
15) 201702_Totans	/186/		

Sum: /73875/

Thanks to external contributors!!!

PDF Statistics (2017-05-16)

Database	References	PDF's	PDF's incl. links X4-NSR
NSR	224,317	73,831 (**33%**)	83,811 (**37%**)
EXFOR	30,423	21,508 (**71%**)	22,133 (**73%**)
CINDA+X4+NSR	86,300	22,997 (**27%**)	30,685 (**36%**)

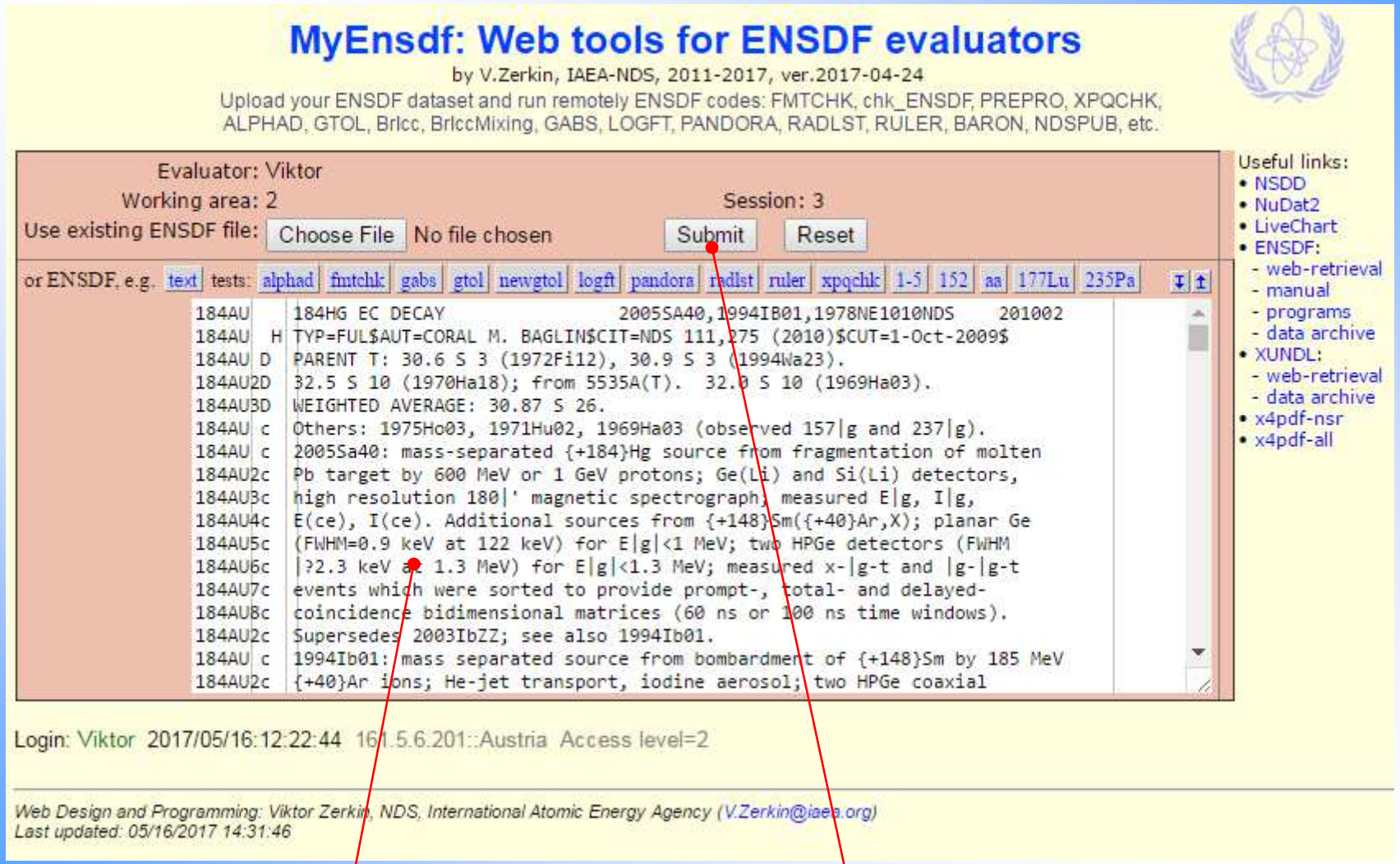
Part II.

MyEnsdf

Web tools for ENSDF evaluators

Main purpose of MyEnsdf:
running ENSDF codes on user's ENSDF file
on Web server

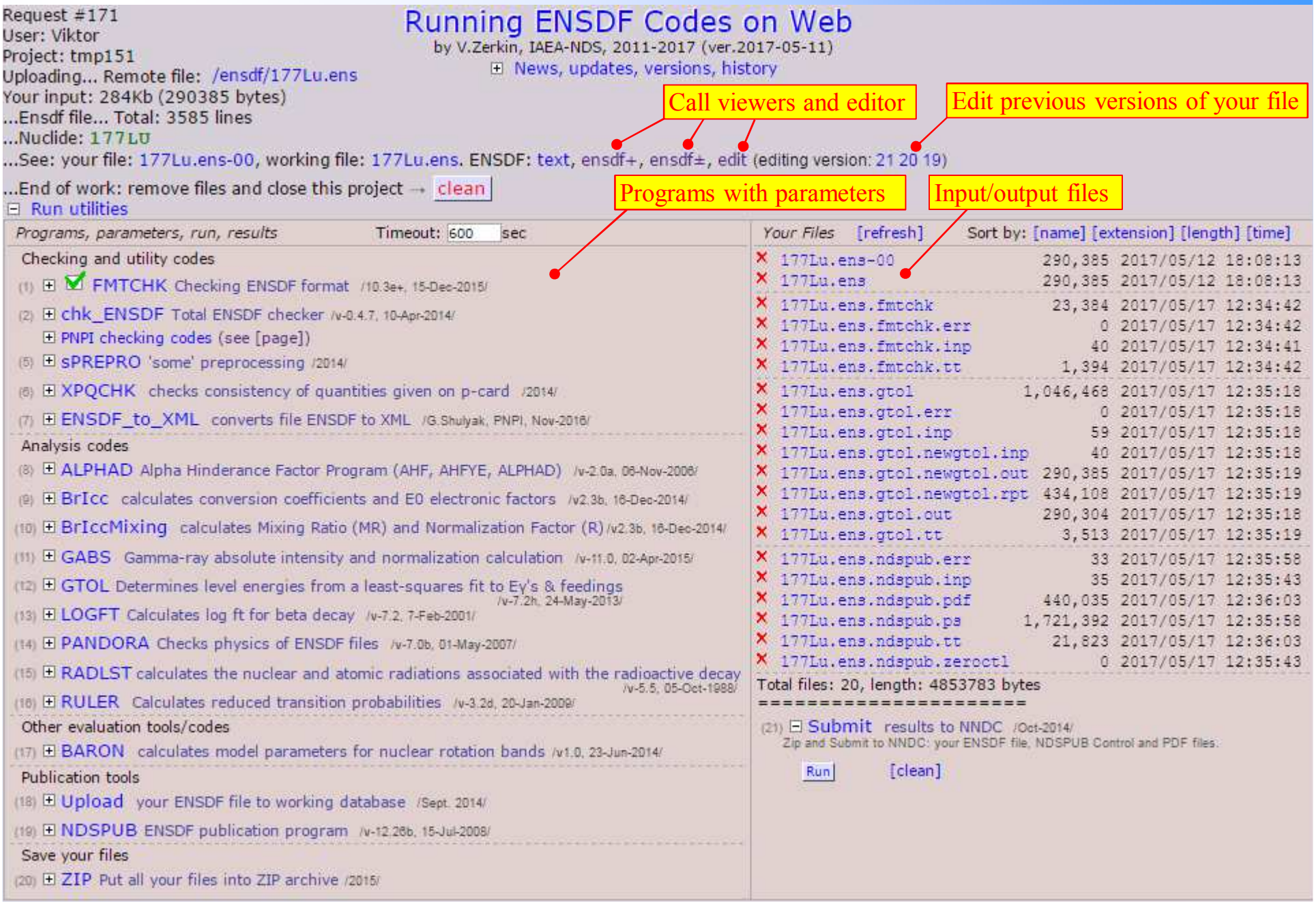
MyEnsdf: data uploading and links



1) Copy/Paste/Edit your ENDSF data file or put Web link

2) Go to use MyEnsdf

MyEnsdf Main Panel



Codes in MyEnsdf (as of 2017-05-16)

Checking and utility codes

1) FMTCHK Checking ENSDF format /10.3e+, 15-Dec-2015/
*2) chk_ENSDF Total ENSDF checker/v-0.4.7, 10-Apr-2014/
*3) chk_PARENT Checking PARENT-records in DECAY datasets/24-Jan-2009/
*4) chk_brackets Pair brackets checker from ENSDF-format files/20-Apr-2012/
5) sPREPRO 'some' preprocessing/2014/
6) XPQCHK checks consistency of quantities given on p-card /2014/
*7) ENSDF_to_XML converts file ENSDF to XML /G.Shulyak, PNPI, Nov-2016/

Analysis codes

8) ALPHAD Alpha Hinderance Factor Program (AHF, AHFYE, ALPHAD) /v-2.0a, 06-Nov-2006/
9) BrIcc calculates conversion coefficients and E0 electronic factors /v2.3b, 16-Dec-2014/
10) BrIccMixing calculates Mixing Ratio (MR) and Normalization Factor (R) /v2.3b, 16-Dec-2014/
11) GABS Gamma-ray absolute intensity and normalization calculation /v-11.0, 02-Apr-2015/
12) GTOL Determines level energies from a least-squares fit to Eγ's & feedings /v-7.2h, 24-May-2013/
* + NEWGTOL program for cases where GTOL does not give results due to matrix singularity (PNPI, 2009)
13) LOGFT Calculates log ft for beta decay /v-7.2, 7-Feb-2001/
14) PANDORA Checks physics of ENSDF files /v-7.0b, 01-May-2007/
15) RADLST calculates the nuclear and atomic radiations associated with the radioactive decay /v-5.5, 05-Oct-1988/
16) RULER Calculates reduced transition probabilities /v-3.2d, 20-Jan-2009/

Other evaluation tools/codes

*17) BARON calculates model parameters for nuclear rotation bands/v1.0, 23-Jun-2014/

Publication tools

18) Upload your ENSDF file to working database /Sept. 2014/ for editing mode
19) NDSPUB ENSDF publication program /v-12.26b, 15-Jul-2008/

** added in 2016-2017*

Future options of MyEnsdf

1. Now it is also available for unauthorized users (Guests) and can be used by students and scientists
2. Should Java-NDS be also running via MyEnsdf on Web servers? If yes, arrangement is needed.
3. New category “Other evaluation tools/codes” can be extended by general purpose programs useful for scientists working with nuclear data and students. (?)

Part III.

ENSDF Web viewers and editor

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

1. ENSDF Interpreted

ensdf+

Interpreted Data

Interpreted Comment

Link to NSR

Original ENSDF text (Cards)

```
177LU  L    457.980715  5/2+              0.45 NS     LE                    C
177LU CL T$From 1996Pe05. Other: T LT 0.8 NS (1971Ma45).
177LU  G     336.335 2    3.8    4 E2
177LU2 G FL=121.6296
177LU CG M$EKC=0.032 11 and EL2C=0.006 4 (1996Pe05). Note, that values
177LU2CG overlap with these for the 336.33G depopulating the state at
177LU3CG 1488.7 KEV.
```

Interpretation

#Nuclide: 177LU
#Dataset: 176LU(N,G) E=THERMAL
#Record 8/148 Level "L7:457.9807(15) 5/2+" Line:2318[2] Child:2
Energy=457.9807(±.0015)keV Spin and parity:Jπ=5/2+ $T_{1/2}$≤0.45·10^{-9}sec
#T: From 1996Pe05. Other: T LT 0.8 NS (1971Ma45).

#Nuclide: 177LU
#Dataset: 176LU(N,G) E=THERMAL
#Record #8/148 Level [L] "L7:457.9807(15) 5/2+" nLines=2 nChild=2
#Record 1/2 Gamma "336.335(2) E2 3.8(4)" Line:2320[5]
E=336.335(±.002)keV
Init.Level:L7:457.9807(15) 5/2+
Expected:FL:E=121.6457±0.0035keV [121.646(4)] $FL=121.6296 ΔE=-0.0161 [5σ] L1:121.6296(
9/2+ ΔE=-0.0161 [5σ]

.....help1: [457.9807,0.0015,336.335,0.002,121.6296,9.0E-4]
Relative photon intensity:RI=3.8(4)
Multipolarity of transaction:M=E2
$FL=121.6296 //Final level energy
#M: EKC=0.032 11 and EL2C=0.006 4 (1996Pe05). Note, that values overlap with these
for the 336.33G depopulating the state at 1488.7 KEV.

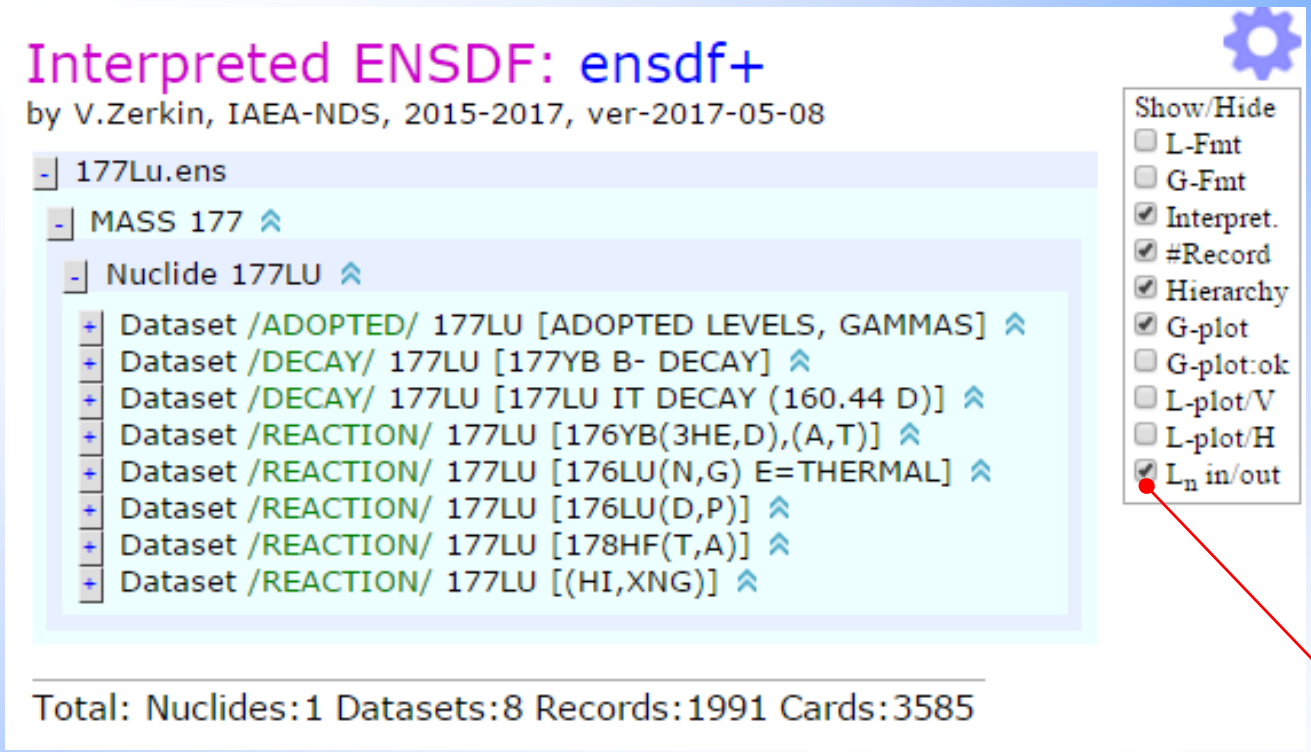
Can it be useful? e.g.→ Indication of possible problem

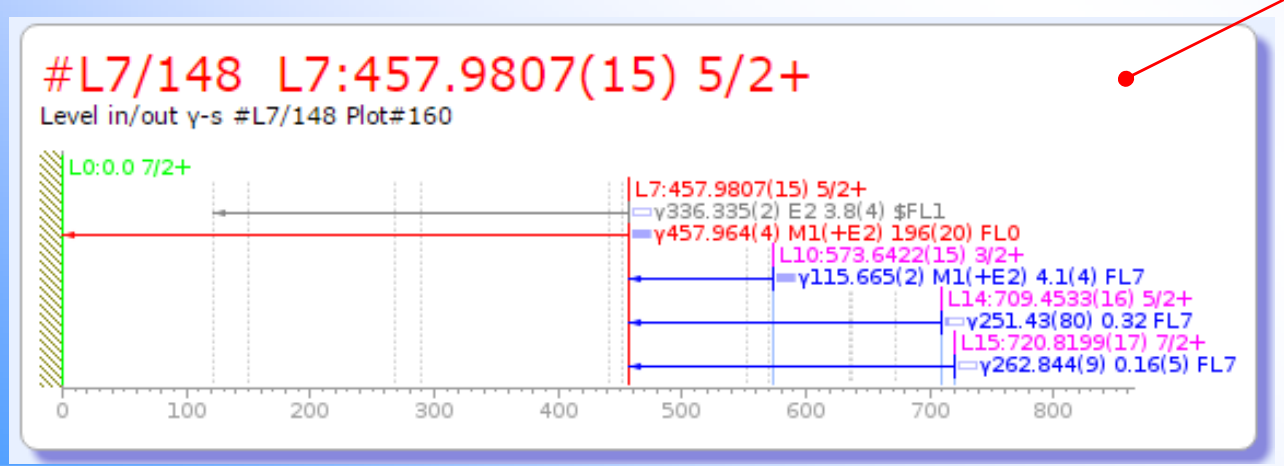
FL in ENSDF file

Expected FL position

1. ENSDF Interpreted

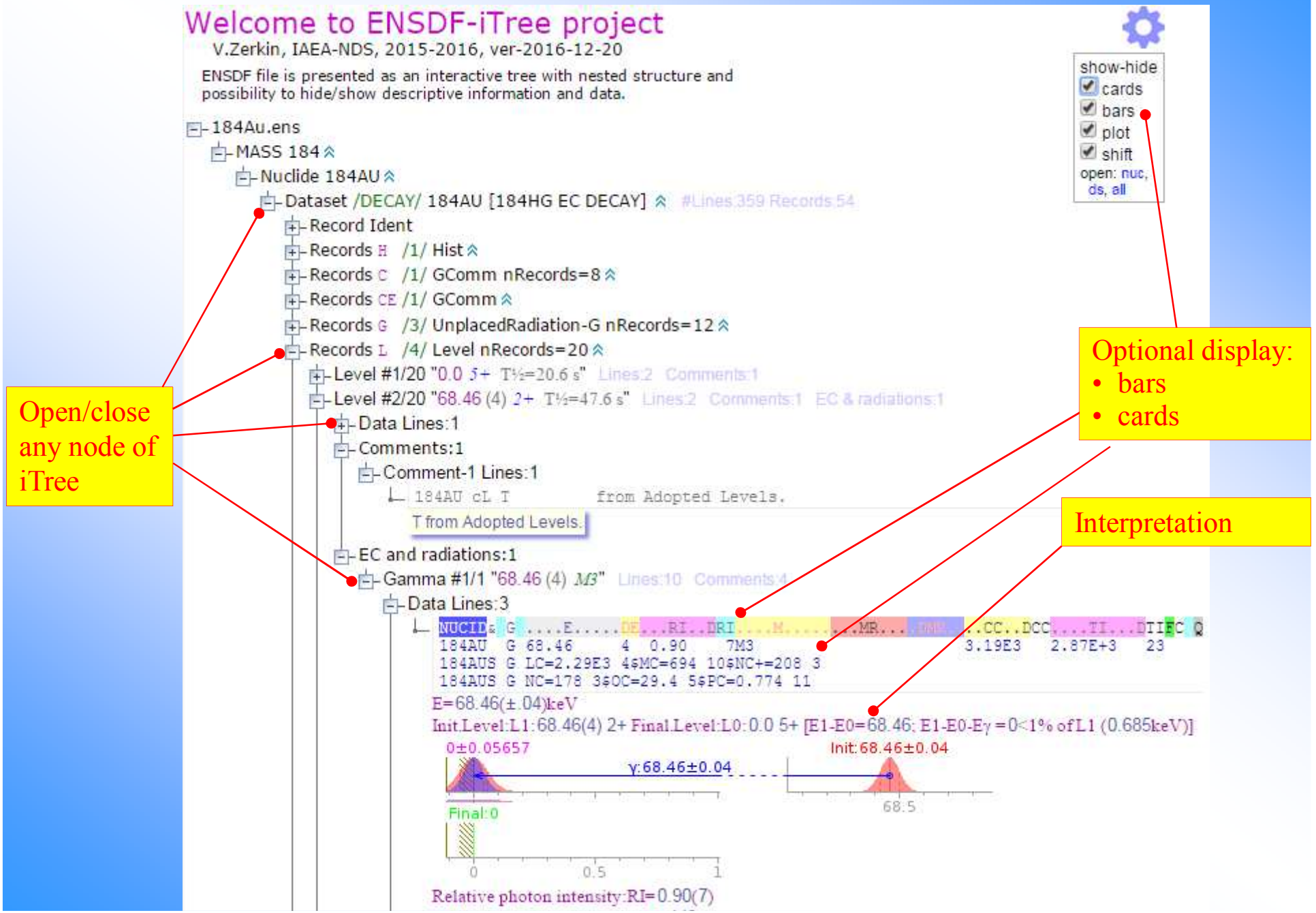
Limited interactions: collapsing blocks of information, display options





Optional: display part of schema

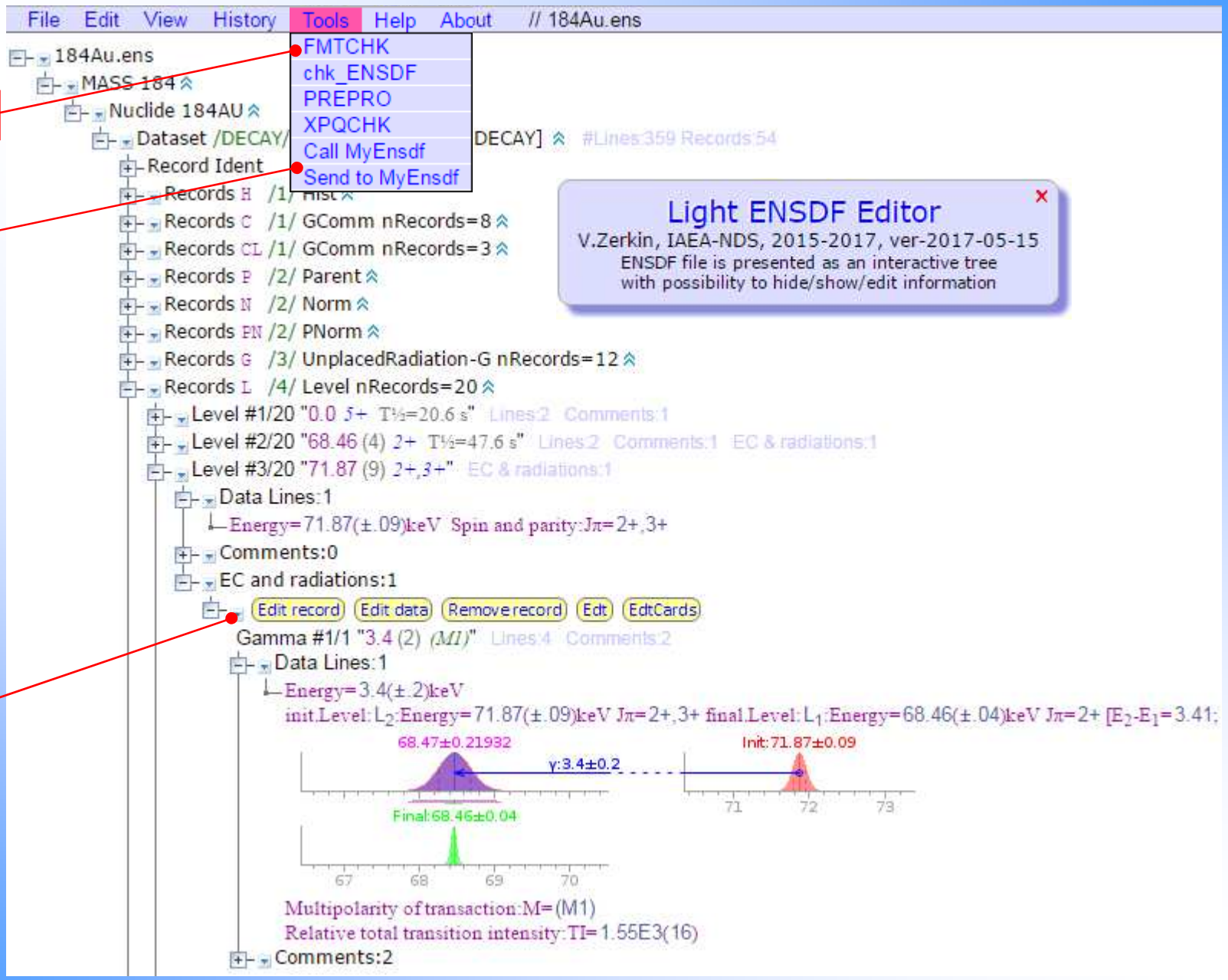
2. ENSDF as interactive tree ensdf±



3. ENSDF Web Editor Project
2015-2017

- Recommended as pilot project on the meeting “Improvement of Analysis Codes for Nuclear Structure and Decay Data Evaluations”, IAEA, 5-8 October 2015
- ENSDF file is presented as hierarchical document (ensdf±) - interactive tree (graph) with possibility to open/collapse branches and with commands associated with the nodes
- The Editor is called from MyEnsdf Web tool for ENSDF evaluators
- User can remove/add/edit nodes
- Editing is implemented via pop-up windows and internal frames
- User can run checking and utility codes on edited file,
  send it to MyEnsdf to run any other programs there
- “Integrated editing” to perform specific operations is foreseen for automation evaluators’ work
- Sharing AJAX technology software infrastructure with EXFOR Web Editor

ENSDF Web Editor

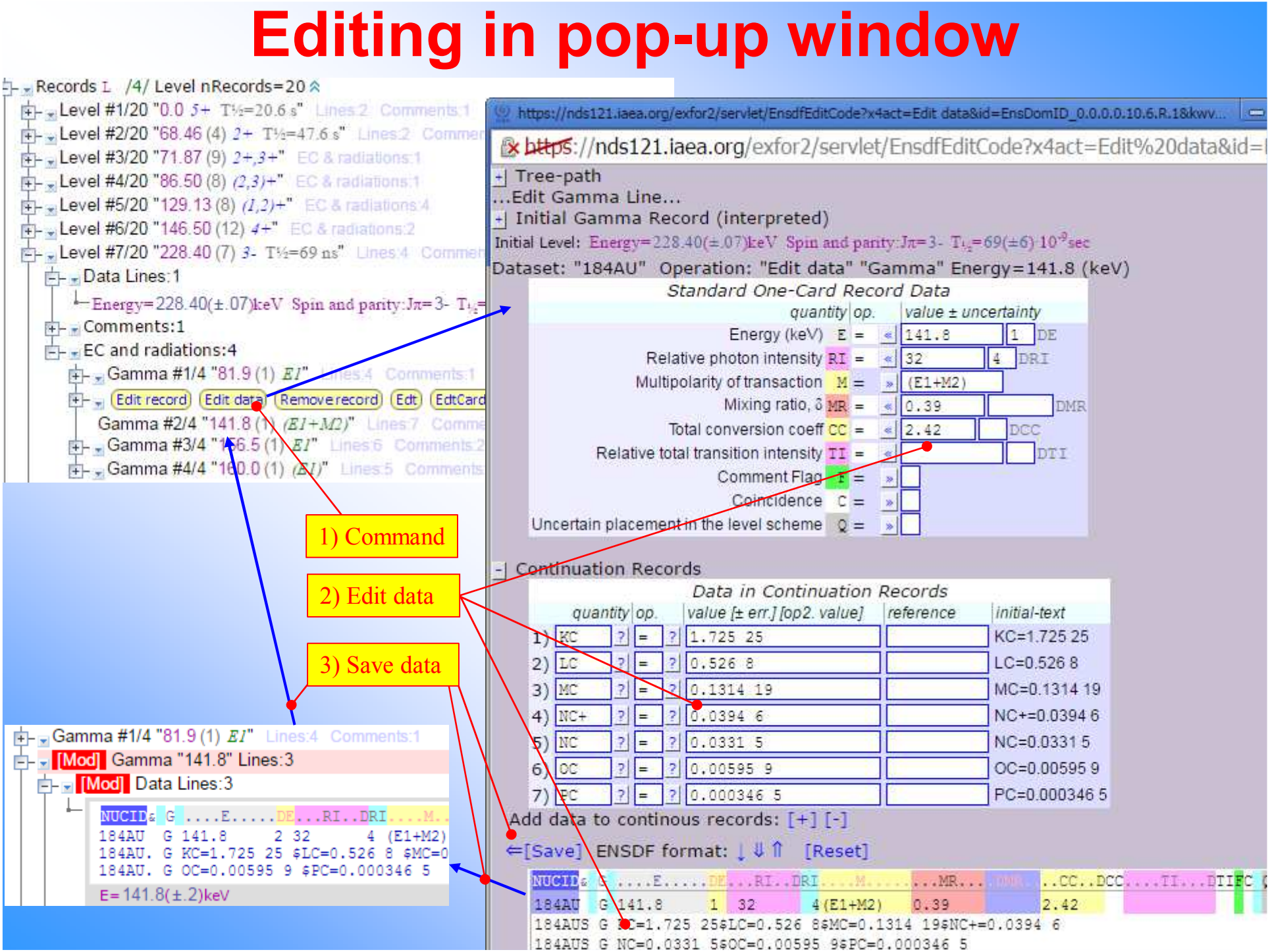


Run FMTCHK

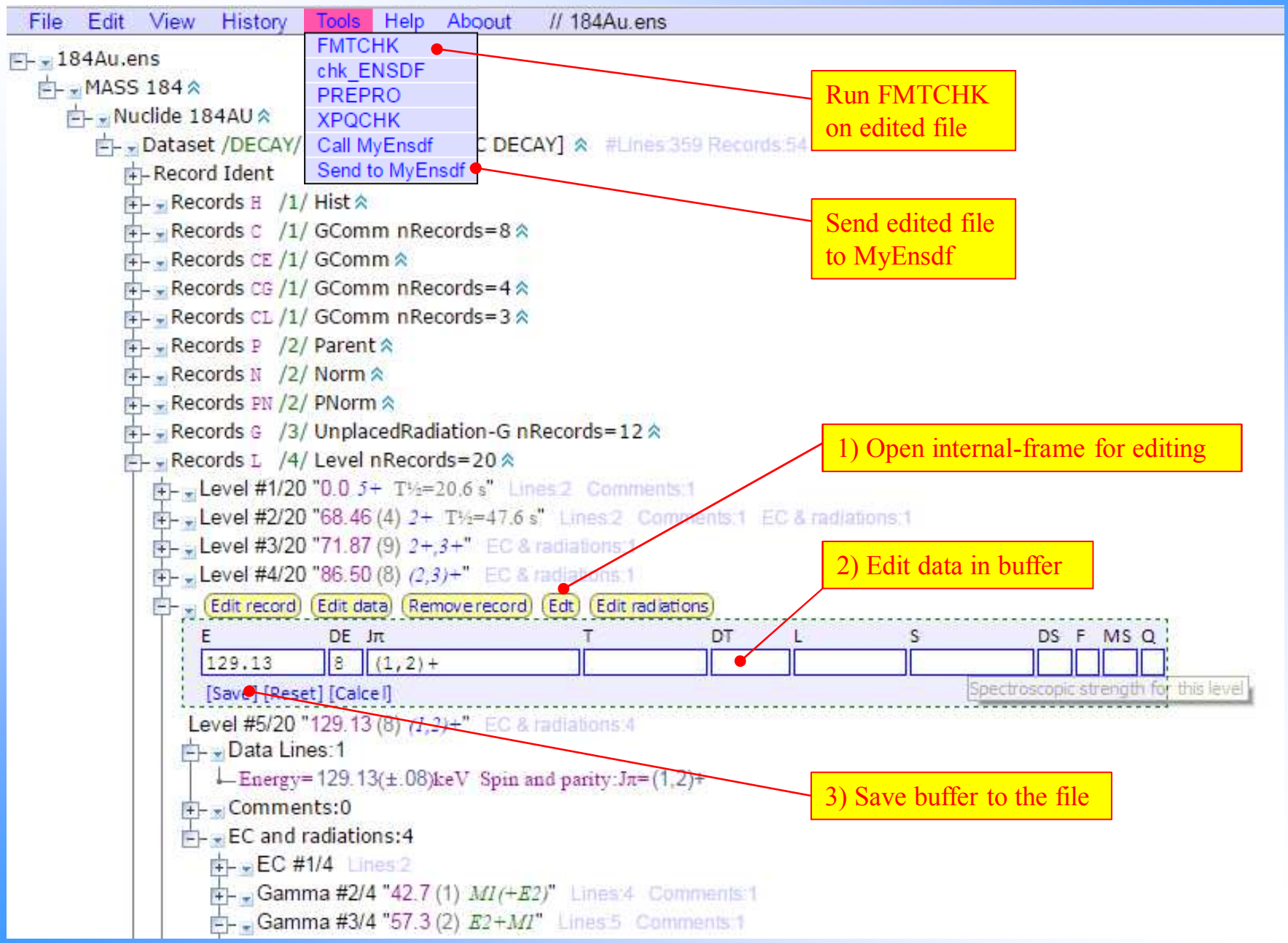
Send ENSDF to MyEnsdf to run other codes

Commands on a node extend iTree ENSDF Viewer

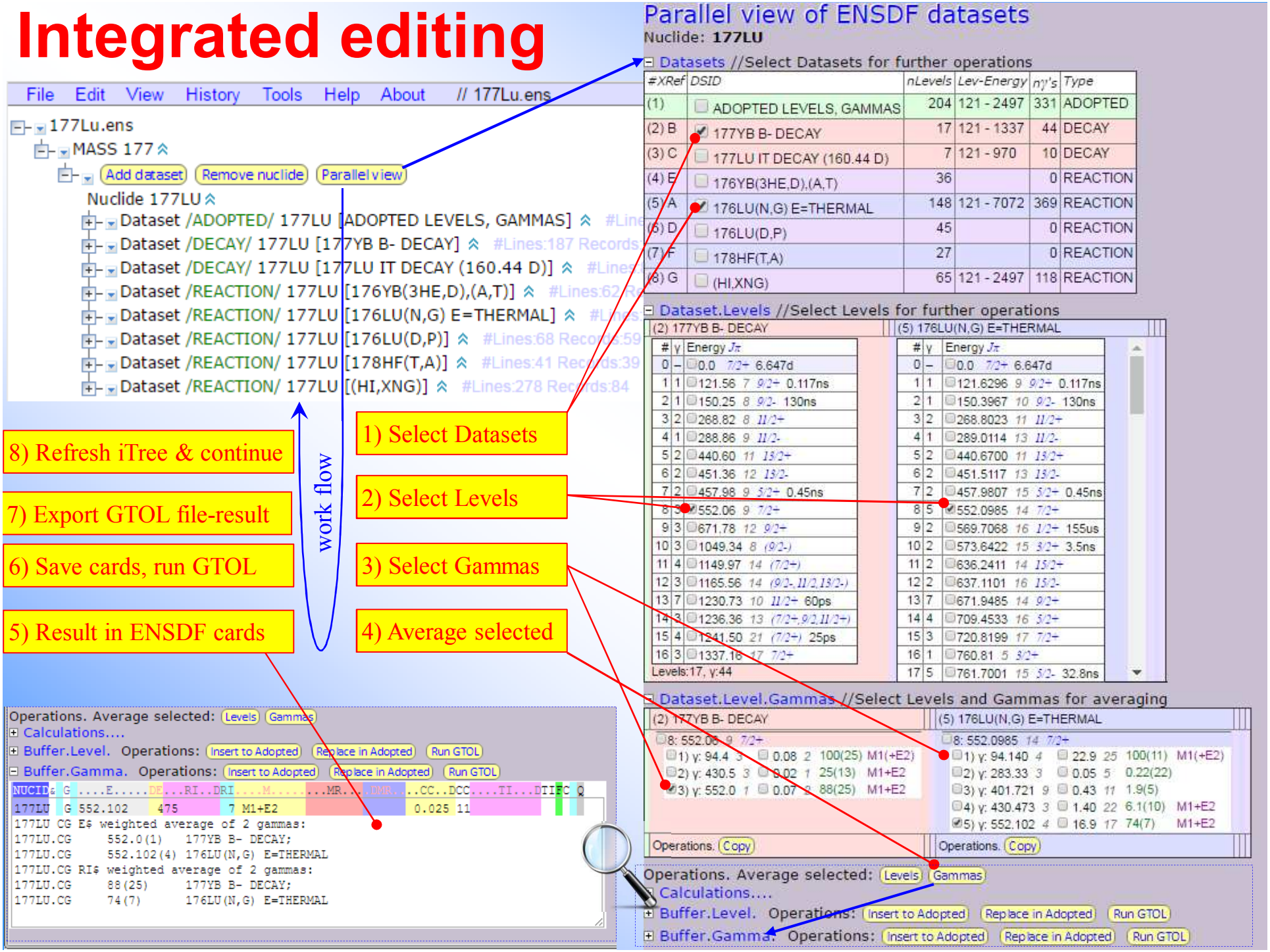
Editing in pop-up window



Editing on the main window



Integrated editing



ENSDF Web Editor
Main Attractions

1. Web based (no installation needed)
2. Light and platform independent: user needs only Web browser
3. Integrated with ENSDF codes and Web systems: MyEnsdf, NSR
4. Can be useful for beginners: showing structure of ENSDF file, offering online help, preventing input errors
5. Can be useful for experienced evaluators by implementing specific (integral or time consuming) tasks

Concluding remarks on ENSDF Web Editor

1. Work on the ENSDF Web editor is in progress
2. Tasks oriented to different types of users and way how the Editor should be built are becoming clearer
3. Consultations with F.Kondev, A.Rodionov, G.Shulyak, T.Kibedi are extremely useful
4. There are still technical and general questions relevant to practices of evaluators operations on ENSDF file
5. Support from NSDD?

Thank you.