



Izvori jedrskih podatkov za knjižnice JEFF-3.2, JENDL-4.0u2 in ENDFB/ VII.1

Andrej Brešan

3. konferenca ŠFOSM

Reaktorski center Podgorica, 29. 2. 2016



„zgodna“ datoteka

```
1.000000+0 3.000000+7      2      0      10
0.000000+0 0.000000+0      0      0      267 2
53-I -127 CAD,BRC,+      EVAL-FEB05 G.NOQUERE, E.DUPONT, E.BAUGE
-----JEFF32      DIST-APR-11
-----INCIDENT NEUTRON DATA      MATERIAL 5325
-----ENDF-6 FORMAT
***** JEFF-3.2 *****
**
**      Original data taken from: JEFF-3.1.1
**      Modification : New MF=6 MT=102 taken from TENDL2011
**      (Replaces any existing Data)
**
***** JEFF-3.1.1 *****
**
**      Original data taken from: JEFF-3.1 Updated
**      Modification:      Corrections by E. Dupont, CEA
*****
Modification of JEFF-3.1
-----
2006-07 E.Dupont (CEA)

MF2/MT151 set AWRI=AWR for LRU=1 (RRR) and LRU=2 (URR)
MF3/MT3 Deleted
MF3/MT5 Deleted (cross section for (g,gx) reaction)
MF3/MT108 Deleted (xs maximum around 1 pico-barn)
MF6/all Normalization of spectra
MF6/MT5 Deleted
MF6/MT108 Deleted
MF8/all MATP set to 0
MF8/MT108 Deleted
MF10/all IZAP added
MF10/MT108 Deleted

***** JEFF-3.1 *****
New evaluation

MAIN AUTHORS AND CONTRIBUTIONS
-----
```

Program za iskanje ključnih besed

```
1 #include <string>
2 #include <iostream>
3 #include <fstream>
4 #include <cstring>
5 #include <sstream>
6 #include <istream>
7 using namespace std;
8
9 int main() {
10     ifstream infile;
11     ofstream of("myfile.csv");
12     string filename;
13     filename="jeff1.";
14
15     string line;
16     char knjiznica[] = "TENDL-2012 (TALYS Evaluated Nuclear Data Library)";
17     char knjiznica1[] = "*** Original data taken from: ENDF/B-VII";
18     char knjiznica2[] = "*** Original data taken from: JEFF-3.1.1";
19     char knjiznica3[] = "*** Original data taken from: JENDL-3.2";
20     char knjiznica4[] = "*** Original data taken from: JEFF-3.1.1 Updated";
21     char knjiznica5[] = "*** Original data taken from: New evaluation";
22     char sprememba[] = "*** Modification : New MF=6 MT=102 taken from TENDL2011";
23     char dodatek1[] = " File obtained by merging";
24
25     for(int i=335;i<475;i++)
26     {
27         ostringstream ss;
28         ss << filename << "(" << i << ")" << ".jeff32c";
29         cout << ss.str().c_str() << '\n';
30         ifstream file(ss.str().c_str());
31         if (file.is_open())
32         {
33             of << " " << i <<33 << '\n';
34             string line;
35             while ( getline ( file,line))
36             {
37                 if ( line == knjiznica1 ){
38                     of << line << '\n';
39                 }
40                 else if ( line == knjiznica ){
41                     of << line << '\n';
42                 }
43                 else if ( line == sprememba ){
44                     of << line << '\n';
45                 }
46                 else if ( line == knjiznica2 ){
47                     of << line << '\n';
48                 }
49                 else if ( line == knjiznica3 ){
50                     of << line << '\n';
51                 }
52             }
53         }
54     }
55 }
```

Kako program izpiše podatke:

```
445
** Original data taken from: JEFF-3.1.1
** Original data taken from: JEFF-3.1
** Original data taken from: JEFF-3.0
446
** Original data taken from: JEFF-3.1.1
** Original data taken from: JEFF-3.1
** Original data taken from: JEFF-3.0
447
448
** Original data taken from: JEFF-3.1.1
** Original data taken from: JEFF-3.1
** Original data taken from: JENDL-3.3
```



Tabela z vsemi zbranimi podatki v Excelu

	A	B	C	D	E	F
1		NUCLIDE	ORIGINAL DATA TAKEN FROM	MODIFICATION	ORIGINAL DATA TAKEN FROM	MODIFICATION
215	1052123	52-Te-123	JEFF-3.1.1	/	JEFF-3.1	/
216	1052124	52-Te-124	TENDL-2012 : Te124 neutron general purpose library	/	/	/
217	1052125	52-Te-125	JEFF-3.1.1	/	JEFF-3.1	/
218	1052126	52-Te-126	JEFF-3.1.1	/	JEFF-3.1	/
219	1052127M	52-Te-127M	JEFF-3.1.1	/	JEFF-3.1	/
220	1052128	52-Te-128	JEFF-3.1.1	/	JEFF-3.1	/
221	1052129M	52-Te-129M	JEFF-3.1.1	/	JEFF-3.1	/
222	1052130	52-Te-130	JEFF-3.1.1	/	JEFF-3.1	/
223	1052131M	52-Te-131M	TENDL-2012 : Te131 neutron general purpose library	/	/	/
224	1052132	52-Te-132	JEFF-3.1.1	/	JEFF-3.1	/
225	10530126	53-I-126	TENDL-2012 : I126 neutron general purpose library	/	/	/
			JEFF-3.1.1		JEFF-3.1 Updated	MF2/MT151 set AWRI=AWR for LRU=1 (RRR) and LRU=2 (URR) MF3/MT3 Deleted MF3/MT5 Deleted (cross section for (g,px) reaction) MF3/MT108 Deleted (xs maximum around 1 pico-barn) MF6/all Normalization of spectra MF6/MT5 Deleted MF6/MT108 Deleted MF8/all MATP set to 0 MF8/MT108 Deleted MF10/all IZAP added MF10/MT108 Deleted
226	1053127	53-I-127		New MF=6 MT=102 taken from TENDL2011 (Replaces any existing Data)		
227	1053128	53-I-128	TENDL-2012 : I128 neutron general purpose library	/	/	/
			JEFF-3.1.1		JEFF-3.1 Updated	MF2/MT151 set AWRI=AWR for LRU=1 (RRR) and LRU=2 (URR) MF3/MT3 Deleted MF3/MT5 Deleted (cross section for (g,px) reaction) MF6/all Normalization of spectra MF6/MT5 Deleted MF8/all -MATP set to 0 MF9/all -IZAP added MF9/MT102 -yields for production of ground- and metastable states of 130I MF10/all -IZAP added MF10/MT102 -Deleted (move to MF9)
228	1053129	53-I-129		New MF=6 MT=102 taken from TENDL2011 (Replaces any existing Data)		
229	1053130	53-I-130	New evaluation	/	/	/

Krajša verzija tabel, dostopna v poročilu

Nuclide	JEFF-3.2	ENDF/B-VII.1	JENDL-4.0u2
1-H-1	New evaluation	New evaluation	ENDF/B-VII.0
1-H-2	New evaluation	(modification) ENDF/B-VII ENDF/B-VI	(Modified) JENDL-3.3
1-H-3	New evaluation	New evaluation	No data
2-He-3	New evaluation	(Modification) ENDF/B-VII ENDF/B-VI	JENDL-3.3 (Modified) JENDL-3.2
2-He-4	JEFF-3.1.1 JEFF-3.1 JENDL-3.3	(Modification) ENDF/B-VII ENDF/B-VI	JENDL-3.3
3-Li-6	New evaluation	(Modification) ENDF/B-VII (Modification) ENDF/B-VI	JENDL-3.3 (Modified) JENDL-3.2



Poenotenja ali zakaj ni program nič našel

```
1 000000+0 2 000000+7      1      0      10      7
0 000000+0 0 000000+0      0      0      245     424
44-Ru-101 BNL,KAERI  EVAL-FEB06 Kim,Herman,Oh,Mughabghab+
DIST-DEC06      20111222
-----ENDF/B-VII.1      MATERIAL 4440
-----INCIDENT NEUTRON DATA
-----ENDF-6 FORMAT

=====
Covariances - BNL, July, 2011: The covariance data were included
from COMMARA-2.0, which were adopted from the low-fidelity file
revisited at BNL in 2009.
=====
ENDF/B-VII evaluation accepted by WPEC Subgroup 23 in 2005    &&
- WPEC: NEA Working Party on Evaluation Cooperation
- SG23: International library of fission product evaluations
=====
```

```
-----ENDF/B-VII.1      MATERIAL 8034
-----INCIDENT NEUTRON DATA
-----ENDF-6 FORMAT

Oct 22,2004. Holly Trellue remade mif6nt5 using corrected gnash
code, to fix an earlier bug. Impact is reduced sec. particle prod.
for new ENDF/B-VII release

EVALUATION OF n + 199HG CROSS SECTIONS FOR THE ENERGY
RANGE 1.0E-11 to 150 MeV

S. Chiba, M. B. Chadwick, and P. G. Young
JAERI and LANL laboratories
1 June 1998

This evaluation provides a complete representation of the
nuclear data needed for transport, damage, heating,
radioactivity, and shielding applications over the incident
neutron energy range from 1.0E-11 to 150 MeV. The discussion
here is divided into the region below and above 20 MeV.

INCIDENT NEUTRON ENERGIES < 20 MeV

Below 20 MeV the evaluation is based completely on the
HG-199 evaluation for JENDL-3.3 by K. Shibata, T. Fukahori,
S. Chiba and N. Yamamuro, documented in (Sh97).

INCIDENT NEUTRON ENERGIES > 20 MeV

The ENDF/B-VI Release 2 evaluation extends to 20 MeV and
includes cross sections and energy-angle data for all
significant reactions. The present evaluation utilizes a more
compact composite reaction spectrum representation above 20 MeV
in order to reduce the length of the file. No essential data for
applications is lost with this representation.
```



Poenotenja ali zakaj ni program nič našel

```
13 0.23050 1,+
14 0.24410 3,-
15 0.26300 6,-
16 0.26301 7,-
17 0.27010 2,+
.. .....
```

The four levels built on top of the K=0 rotational band are coupled in the present calculation.

(n,xn) and (n,γ) cross sections, and secondary neutrons spectra were obtained with the GNASH nuclear reaction code [Yo96]. The neutron spin-dependent transmission coefficients were obtained from the ECIS calculation.

The neutron-induced fission cross section was taken directly from our evaluation work on Am-242m, where experimental data exist. No experimental data exist on Am-242g, due to the very short half-life of about 16 hours. The (n,f) cross section for Am-242m was obtained through a Bayesian analysis of available experimental data.

At low incident neutron energies, the resonance parameters were directly taken from the JENDL-3.3 evaluation file. The resolved resonance region extends up to 100eV, and the unresolved resonance region up to 44.2838 keV. A smooth transition from 44.2838 keV to 100 keV was established to connect to our ECIS results for the total cross section and to our fission and capture cross sections at higher energies.

The sections MF1,MT452,455,456 and MF5,MT18 were also adopted from the JENDL-3.3 evaluation.

----- REFERENCES -----

[Ra94] "Notes on ECIS94". J. Raynal. Technical report #CEA-N-2772, CEA Saclay, France (1994)

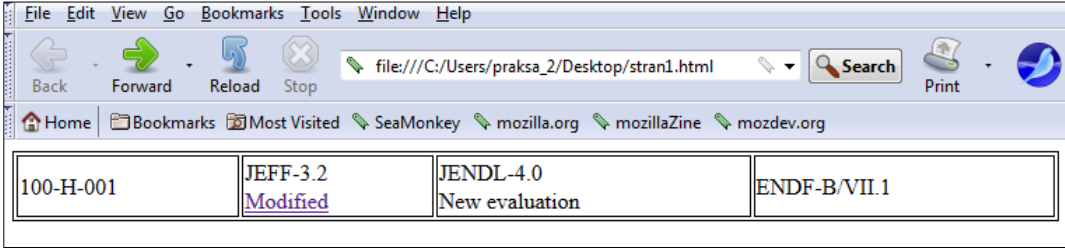
```
-----JENDL-4.0          DIST-MAY10          20090904
-----INCIDENT NEUTRON MATERIAL 2625
-----ENDF-6 FORMAT

HISTORY
87-03 Evaluation was performed for JENDL-3.
87-05 Compiled by K.Shibata (jaeri).
93-11 JENDL-3.2
      The cross sections for mt=54,55 were modified by
      K. Shibata (jaeri).
      The Q-value of mt=102 was corrected.
      Angular distributions for mt=16,22,28,91 were obtained
      from the JENDL Fusion File /1/ (kalbach's systematics).
      The gamma production data were reevaluated by S. Igarasi
      (nedac).
      Data were compiled by K. Shibata.
      **** modified parts for JENDL-3.2 ****
      (3,54),(3,55) Direct components
      (3,102)      Q-value corrected
      (3,4)       Recalculated
      (3,2)       Total - nonelastic
      (4,16),(4,22),(4,28),(4,91)
      (12,28),(12,102),(12,103) Converted from JENDL fusion file
      (15,102)    Multiplicities corrected
      (15,102)    Newly calculated below 10 keV
      ****

2000-04 Re-evaluated and compiled by K.Shibata (jaeri).
      **** modified parts for JENDL-3.3 ****
      (1,451) Modified
      (2,151) Taken from ENDF/B-VI.6
      (3,1)   Re-evaluated
      (3,2)   Re-calculated
      (3,102) Pre-equilibrium capture included
      (3,103) Taken from JENDL/D-99 /2/
      (3,251) Deleted
      (4,2)   Transformation matrix deleted
      (4,16),(4,22),(4,28),(4,91) Deleted
      (5,16),(5,22),(5,28),(5,91) Deleted
      (6,16),(6,22),(6,28),(6,91) Taken from JENDL/F-99/1/
      ****
```

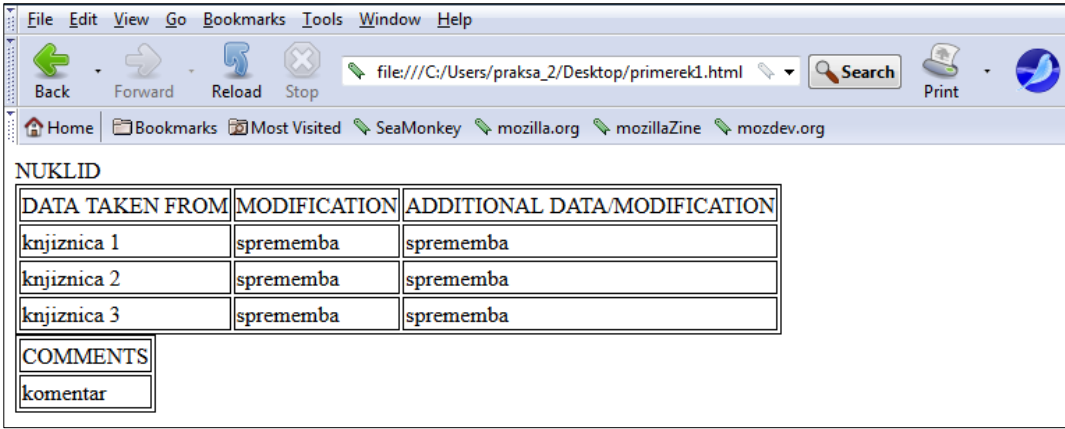


Dostopnost na spletu



A screenshot of a web browser window. The address bar shows the file path: file:///C:/Users/praksa_2/Desktop/stran1.html. The browser interface includes a menu bar (File, Edit, View, Go, Bookmarks, Tools, Window, Help), navigation buttons (Back, Forward, Reload, Stop), a search box, and a print button. Below the browser window, a table is displayed with four columns and one row of data.

100-H-001	JEFF-3.2 Modified	JENDL-4.0 New evaluation	ENDF-B/VII.1
-----------	--------------------------------------	-----------------------------	--------------



A screenshot of a web browser window. The address bar shows the file path: file:///C:/Users/praksa_2/Desktop/primerek1.html. The browser interface is similar to the first screenshot. Below the browser window, a table is displayed with three columns and three rows of data. Below the table, there is a section titled 'COMMENTS' with a text input field.

NUKLID

DATA TAKEN FROM	MODIFICATION	ADDITIONAL DATA/MODIFICATION
knjiznica 1	sprememba	sprememba
knjiznica 2	sprememba	sprememba
knjiznica 3	sprememba	sprememba

COMMENTS

komentar

