

NEA Activities

Validation of JEFF3.1

CSWEG, 6-7 November 2007

Yolanda Rugama, Hans Henriksson

OECD/NEA

Contents

- ✓ Relevant activities within the WPEC
- ✓ General and High Priority Requests (HPRL)
- ✓ JEFF-3.1 validation and nuclear data needs for new releases

Working Party of international nuclear data Evaluation Co-operation (WPEC) Activities

(<http://www.nea.fr/html/science/wpec/>)

- ✓ Established to promote the exchange of information on nuclear data evaluations, measurements, nuclear model calculations, validation.
- ✓ Provides a framework for co-operative activities between the participating projects.
- ✓ Assesses needs for nuclear data improvements and initiates joint evaluation and/or measurement efforts.

WPEC subgroup activities

Subgroup C: **High Priority Nuclear Data Request List (HPRL)**

Subgroup 25: Assessment of fission product decay data for decay heat calculations (Final report ready)

Subgroup 26: *Nuclear data needs for advanced reactor systems*

Subgroup 27: Prompt photon production from fission products

Subgroup 24+28: Production and processing of covariances

Subgroup 29: U-235 capture cross section in the keV to MeV energy region

Subgroup 30: Improvement of EXFOR accessibility and quality

WPEC SG-C: HPRL: www.nea.fr/html/dbdata/hprl

Home | About Us | Work Areas | Data Bank | Publications | Press Room | Search

NEA Nuclear Data Request List

HPRL-Main | Search | New request template | New request guidelines | Related references

Results of your search in the request list
Requests are shown from the following list(s):
High Priority (H)
General (G)

Explanations of each column can be found in the table heads. To view the details of a request, please click on the **link symbol** after the request ID.
To send a comment on a particular entry, please view the request, and click on the **'letter'** symbol there.

Req.ID	View	Target	Reaction	Quantity	Energy range	Sec.E/Angle	Acc	Cov	Field	Date
G 1		14-SI-28	(n,np)	SIG	Threshold-20 MeV	4 pi	20%	Y	Fusion	21-SEP-05
G 10		79-AU-197	(n,tot)	SIG	5 keV-200 keV		5%		Science,Fusion	18-MAY-07
G 11		94-PU-239	(n,f), (n,g)	SIG,eta, alpha	1 meV-1 eV		1%	Y	Fission	09-MAY-07
H 2		8-0-16	(n,a)	SIG	2.5 MeV-10.0 MeV		5%	Y	Fission	21-SEP-05
H 3		94-PU-239	(n,f)	Prompt g-prod	Thermal-Fast	Eg=0-10MeV	7.5%	Y	Fission	28-APR-06
H 4		92-U-235	(n,f)	prompt g-prod	Thermal-Fast	Eg=0-10MeV	7.5%	Y	Fission	10-MAY-06
H 5		72-HF-0	(n,g)	SIG	0.5-5.0 keV		4%	Y	Fission	28-APR-06
G 6		92-U-233	(n,g)	SIG	10 keV-1.0 MeV		9%	Y	Fission	28-APR-06
G 7		26-FE-56	(n,xn)	SIG,DDX	7 MeV-20 MeV	1MeV-20MeV	30%		ADS,Fission	13-JUL-06
H 8		1-H-2	(n,ela)	dA/dE	0.1 MeV-1 MeV	0-180 Deg	5%	Y	Fission	25-JUL-06
G 9		92-U-233	(n,g)	nubar, SIG	Thermal-10 keV		.5%	Y	Fission	19-APR-07

WPEC subgroup on HPRL


Subgroup C: High Priority Nuclear Data Request List (HPRL)

- 5 high priority request
- 6 general requests
- 2 pending requests (Pu-242, U-235) and Japanese requests for ADS systems (J-PARC)

Subgroup 25 on decay data. TAGS measurement needs:

Br-86,87,88	Kr-89,90	Nb-98-101	Mo-103,105
Tc-102-106	Sb-132	I-136-137	Xe-137,139,140

WPEC subgroup on HPRL



**AEN
NEA** Agence pour l'énergie nucléaire
Nuclear Energy Agency

Home
About Us
Work Areas
Data Bank
Publications
Press Room
Search

HPRL: NEA Nuclear Data Request Submission Form

HPRL-Main
Search
New request template
New request guidelines
Related references

Requester details (Items marked * are mandatory)	
Name *	<input type="text"/>
Email *	<input type="text"/>
Organisation *	<input type="text"/>
Country or International Organisation	<input type="text"/>

Before filling in this template, Please see the guidelines for submitting requests

Measurement details	
Target Z *	<input type="text" value="↓"/>
Target A *	<input type="text"/>
Reaction/Process *	<input type="text"/> Examples to choose from ↓
Quantity *	<input type="text"/> Examples to choose from ↓
Incident Energy range (eV) *	<input type="text"/>
Secondary energy (eV) or angle *	<input type="text"/>
Covariance information *	<input type="checkbox"/>
Type of request *	<input type="checkbox"/> High priority
Field (application areas) *	<div style="border: 1px solid #ccc; padding: 2px;"> Other Fusion Decay heat and delayed neutron calculations Industrial </div>
Subfield *	<input type="text"/>

Notes	<input style="width: 90%;" type="text"/>
-------	--

<http://home.nea.fr/welcome.html>

WPEC subgroup 30 on EXFOR

Quality and accessibility assessment of EXFOR

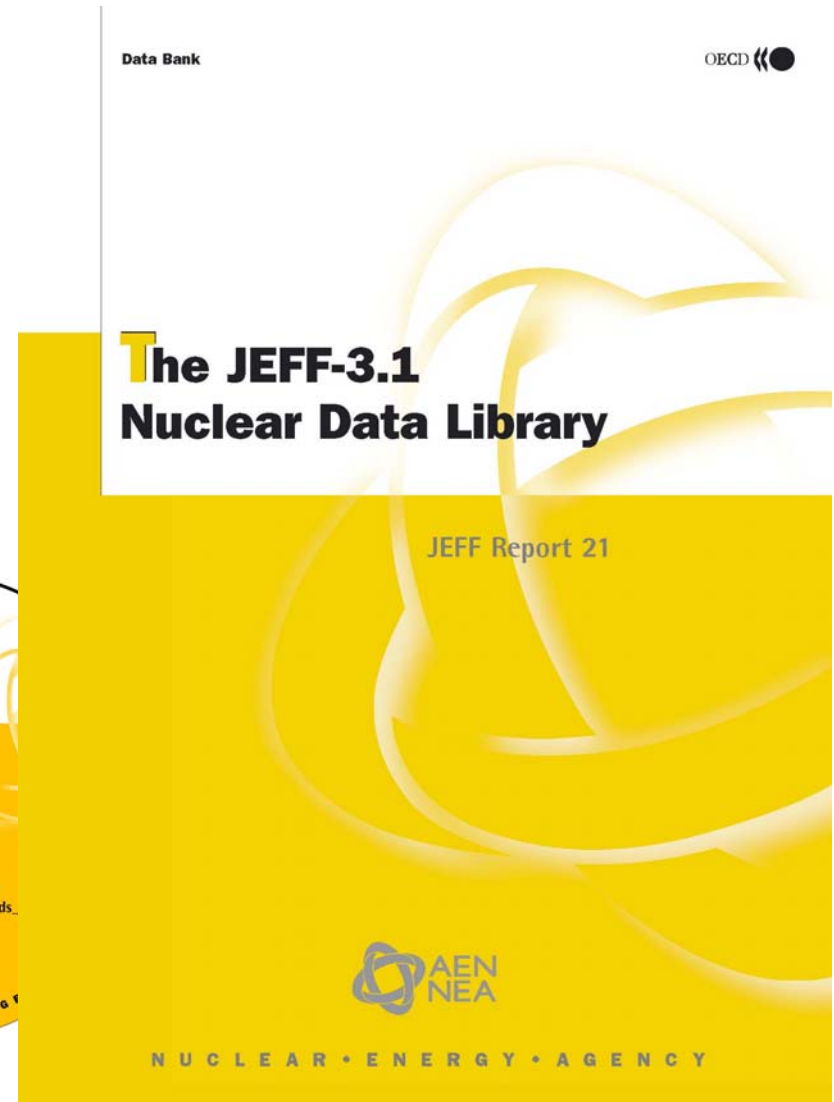
- First meeting in Vienna, 11 October 2007
- Discussions on a better completeness on photonuclear data and certain old data not yet included in EXFOR.
- Maintenance of the EXFOR database.
- Faster response to trivial corrections.
- Verified computational format (C4) to be used in codes.

JEFF Report 21:

The JEFF-3.1 Nuclear Data Library

Published in Nov 2006

Available from the
NEA, free of charge

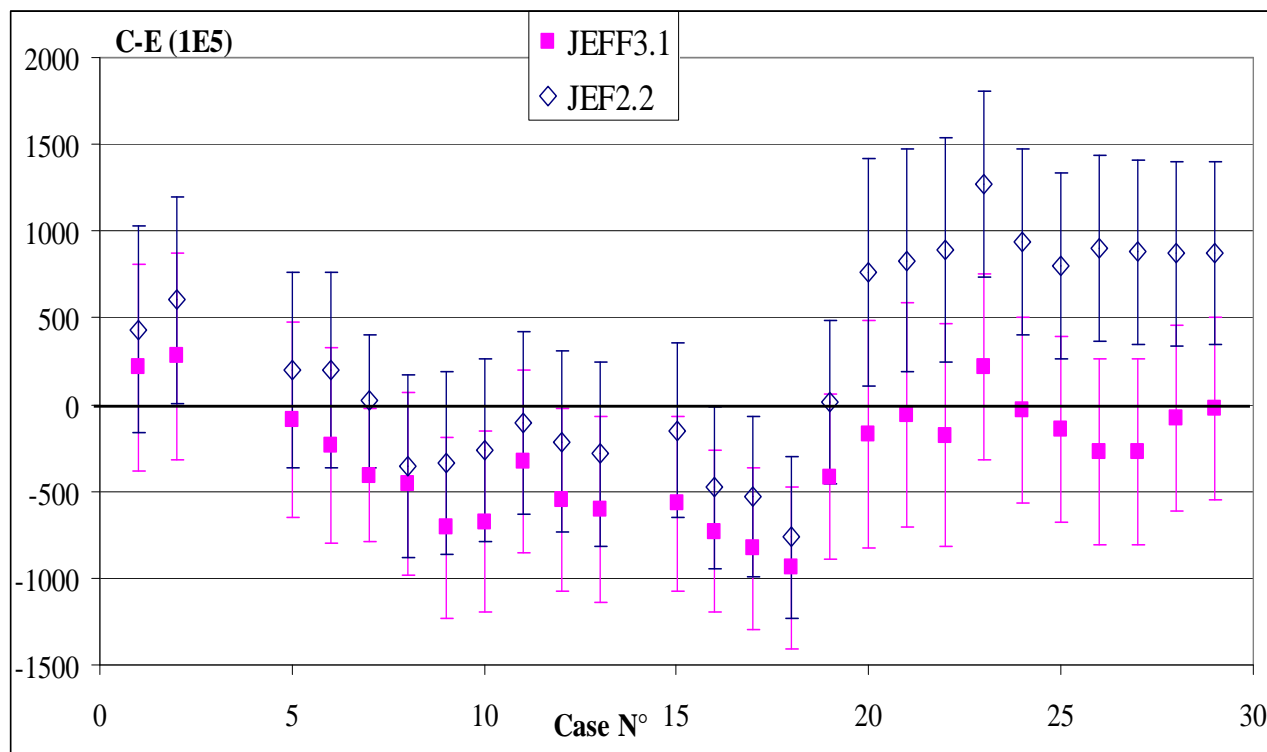


JEFF Report 22

“Validation of the JEFF-3.1 nuclear data library”

- thermal reactors
- fast reactors
- fuel cycle, storage and reprocessing
- Fusion
- other applications

Improvement of U-235 for the intermediate region (Criticality validation I. Duhamel JEFFDOC-1187



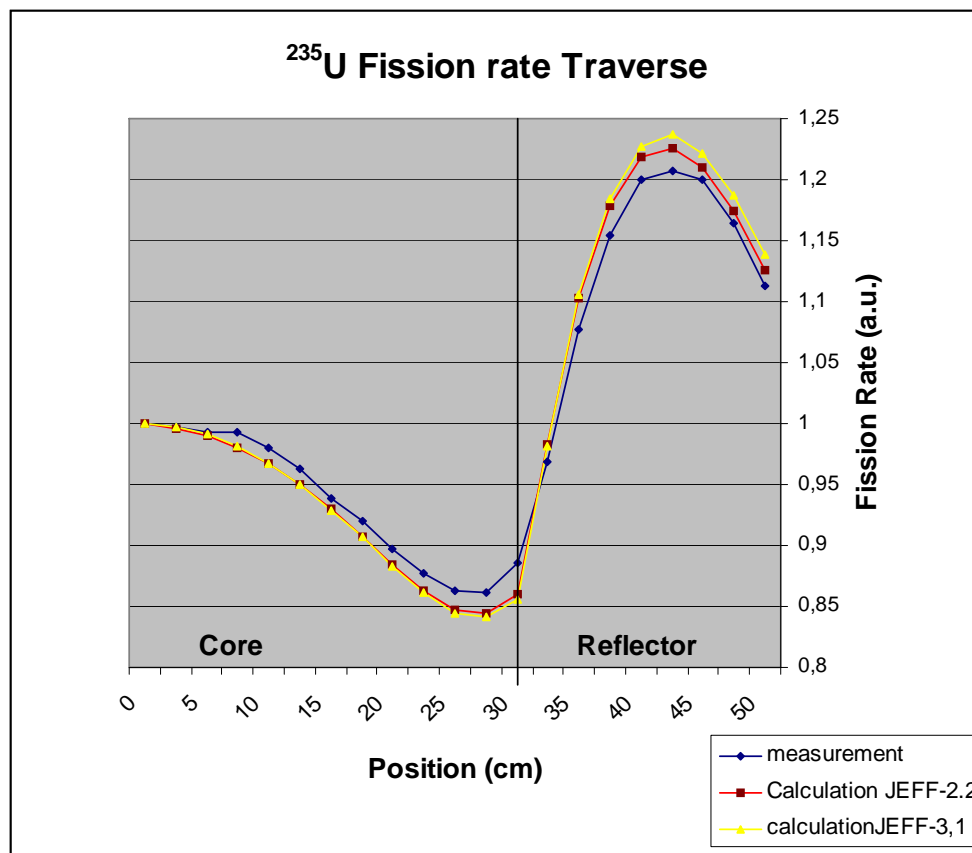
JEFF Report 22

“Validation of the JEFF-3.1 nuclear data library”

- thermal reactors
- fast reactors**
- fuel cycle, storage and reprocessing
- Fusion
- other applications

U-235 from JEFF3.1 improves the reactivity over-prediction however Fe -56 scattering data needs some reviewing , Tommasi (JEFFDOC/1192)

CSWEG 2007



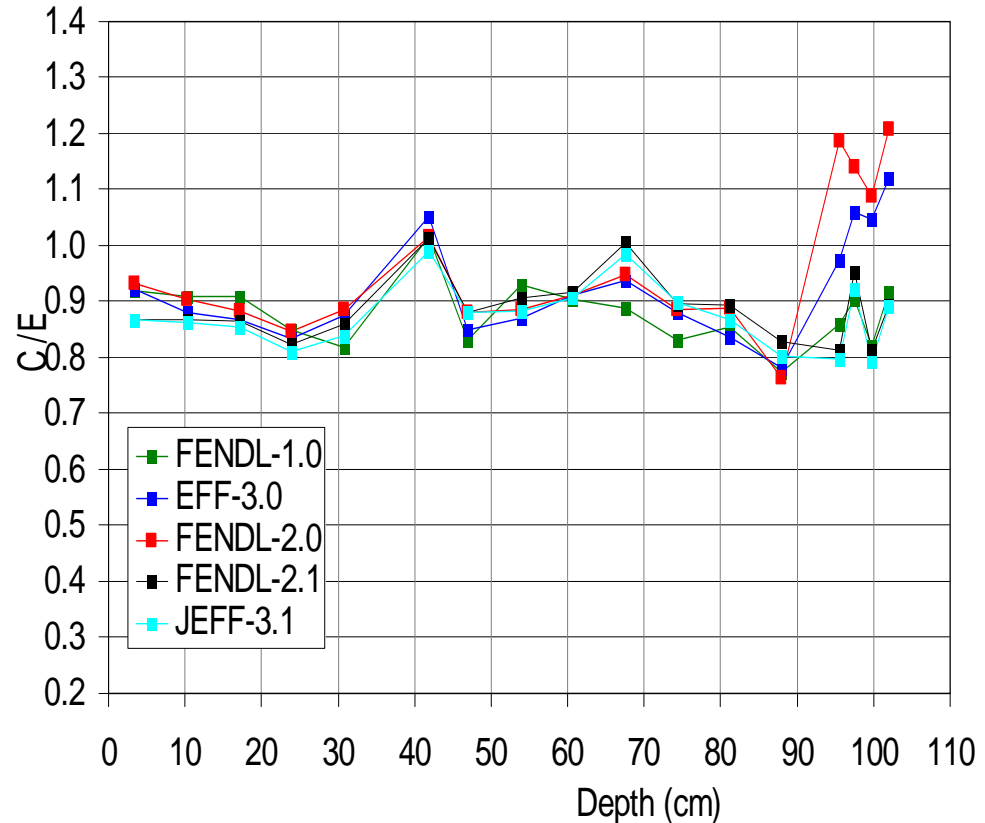
NEA activities. Yolanda Rugama

JEFF Report 22

“Validation of the JEFF-3.1 nuclear data library”

- thermal reactors
- fast reactors
- fuel cycle, storage and reprocessing
- fusion
- other applications

Nuclear Heating in stainless steel and copper,
 Batistoni (EFFDOC-1004)

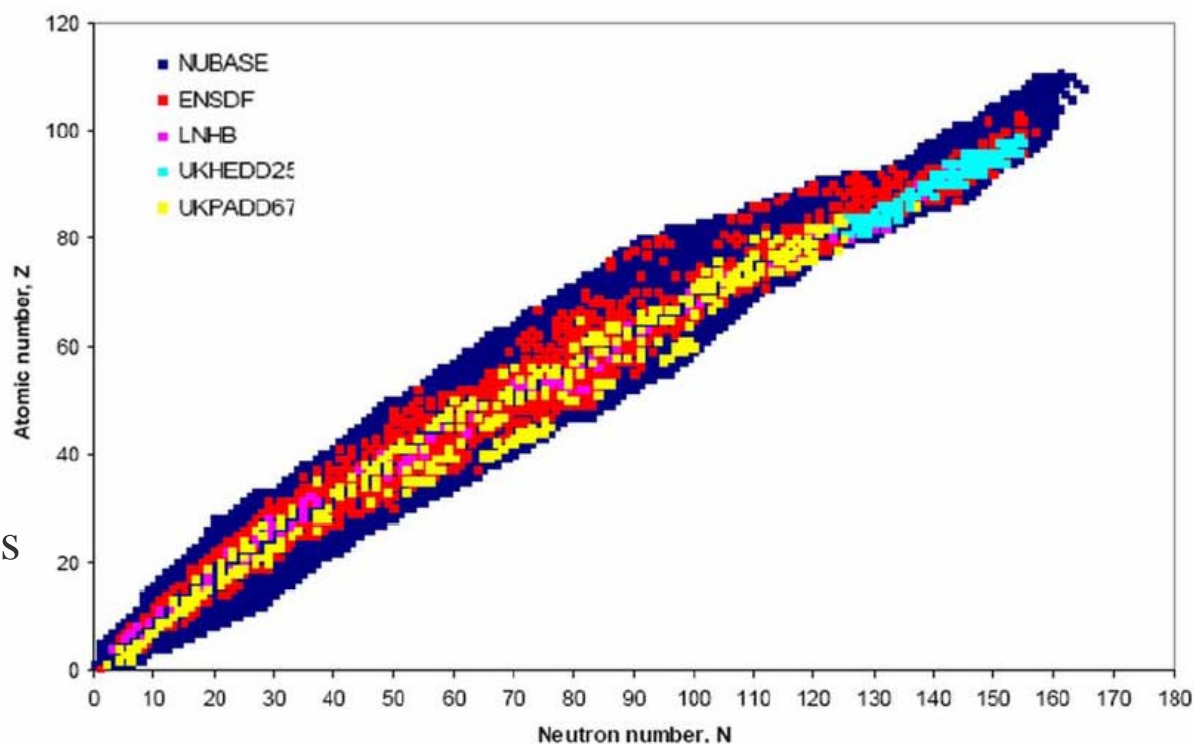


JEFF-3.1.1 Radioactive Decay Data Library

Changes in nuclei:

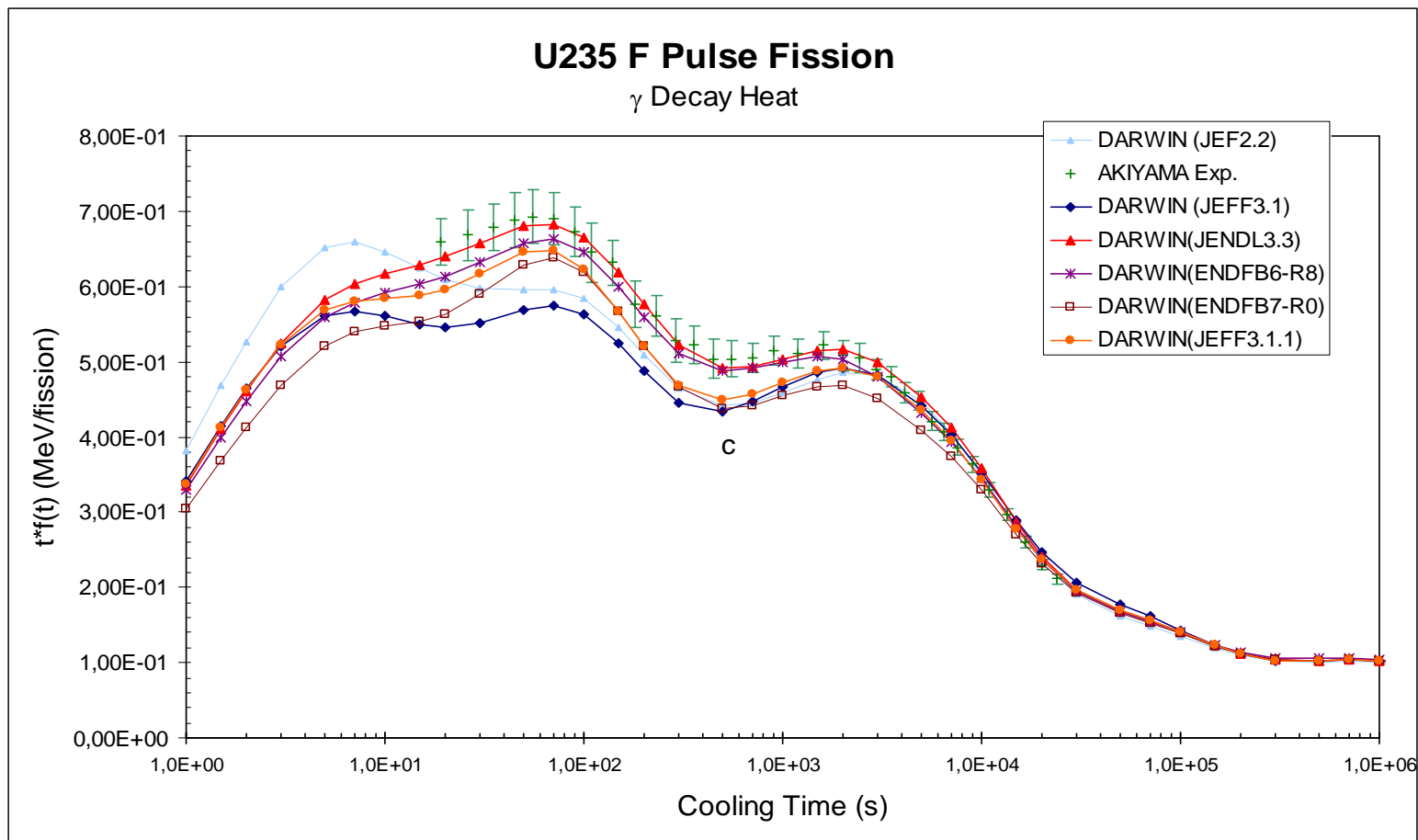
- +59 from UKPADD-6.7
- -44 from NUBASE,
- -13 from ENSDF,
- -2 from LNHB
- Inclusion of TAGS data (Greenwood et al.) for ~ 25 nuclei
- U-238, nuclei $Z > 70$, Sr-89, Am-242 corrections from the feedback page

In total 3852 nuclei




M. Kellett (IAEA)

JEFF-3.1.1/RDD validation results



Preliminary results, T-D. Huynh (CEA/SAclay)

Feedback on JEFF3.1



Feedback on JEFF-3.1

Please, see also proposals for JEFF-3.2 (password protected)

[Enter new feedback](#)

Back to the [main page](#) of the JEFF-3.1 Library.

Last updated on 23 October 2007

- [Feedback on the Neutron Files](#)
- [Feedback on the Thermal Scattering Files](#)
- [Feedback on the Radioactive Decay Data Files](#)
- [Feedback on the Activation Files](#)

The status column identify the feedback status:

- Submitted: Feedbacks submitted to the NEA and not yet revised by the Working Group
- Accepted: Feedback has been accepted by the Working Group
- Updated: A new updated file is available

*: Z-sym-A and state if not ground, or compound
**: File name as in the official CD-ROM

Feedback on the Neutron Files

Nuclide*	File name**	From	Date	Comment	Status
11-Na- 23	JEFF31N1125_0.ASC	D. Brown	28 November 2005	MF=4.The data is given in the wrong frame as LCT = 2.	Submitted
12-Mg- 24,25,26	JEFF31N1225 (28,31)_0.ASC	W. Haeck	14 June 2006	Large discrepancies compare with the elemental version in JEFF3.0 (JEF/DOC-1125 and JEF/DOC-1141). Major differences for angular distributions in different levels of inelastic scattering (MT 51 and 52).	Submitted
17-Cl- 35	JEFF31N1725_0.ASC	Lopez-Aldama	21 June 2005	File 14 (MF=14) the NK value should be equal to the NK in file 12 and 13 JEFF31N1725_1.ASC).	Accepted and updated
17-Cl- 37	JEFF31N1731_0.ASC	NEA	3 June 2005	The number of lines in MF3, MT1,MT2 and MT102 is wrong in the MF1, MT451 list. The number of lines should be 4189, instead of 2043. JEFF31N1731_0.ASC).	Accepted and updated on final version
20-Ca- 46	JEFF31N2043_0.ASC	V. Sinitza and M.	24 March 2006	The total cross section (MF3,MT1) below 1 keV is zero, while the capture cross section is not zero. The total (MT1) is not the sum of the cross	accepted

Plans for JEFF-3.2

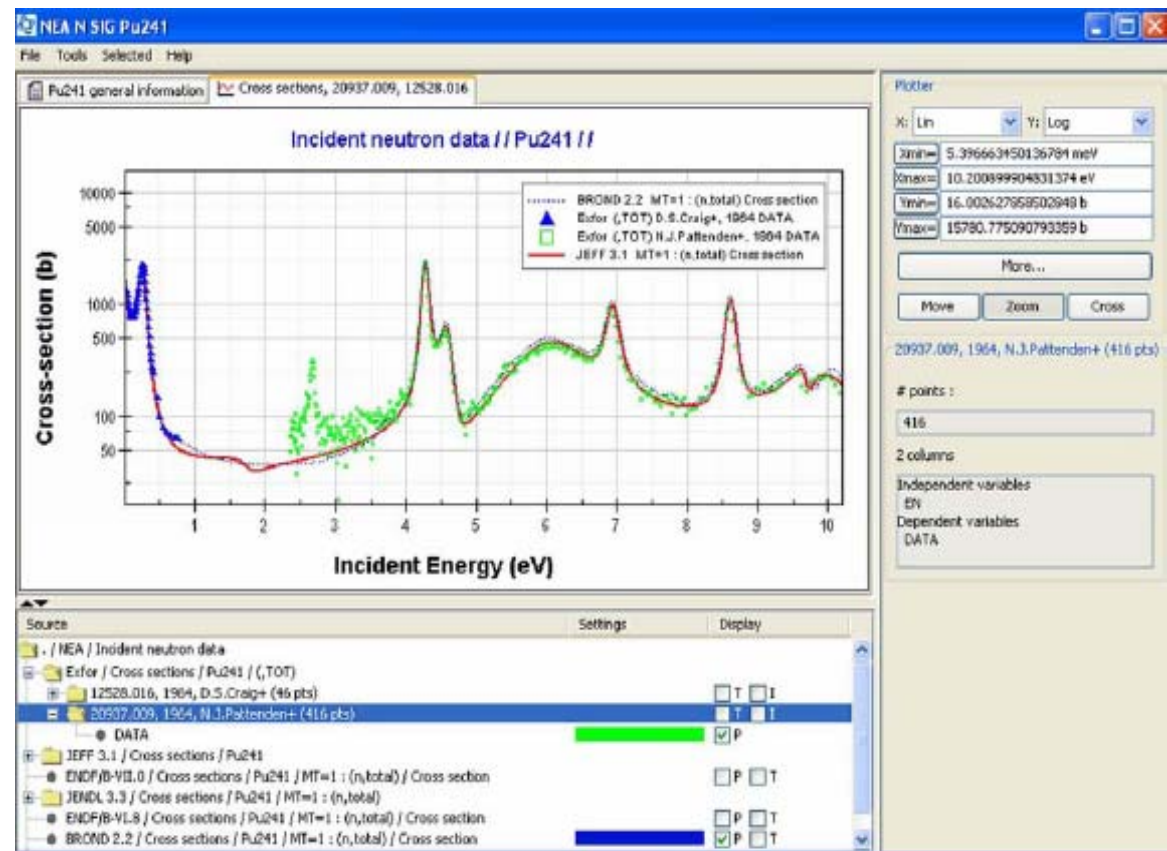
- Revise **U-235** and **U-238** (emphasis on high energy region)
- New evaluation for the **Pu-239**
- More evaluations with **covariance** data
- Latest version of European Activation file (**EAF-2007...**)
- **Photonuclear** data for all isotopes when available
- New evaluations for **Tungsten, Hafnium and Tantalum.**
- New evaluations using the measurements from Geel: **Pb, Bi, Am-241 and Am-242**
- Integrate the **Th-232** evaluation available from IAEA.

A tentative date for the release is 2009

Janis 3

New version of the NEA data display software

- ✓ Released June 2007
- ✓ Improved plotting functionality
- ✓ Better export possibilities
- ✓ Completely new CINDA Search page
- ✓ Inclusion of the EXFOR database in original format.
- ✓ Extended EXFOR Search
- ✓ Free download from www.nea.fr/janis (DVD on request)



Summary

- ✓ Recent activities related to nuclear data needs at the NEA cover
 - ✓ Preparation of JEFF-3.1 validation report
 - ✓ JEFF3.1.1 Radioactive Decay Data Library
 - ✓ The update of the HPRL with new nuclear data requests
 - ✓ WPEC subgroups on nuclear data needs for advanced reactors
 - ✓ WPEC subgroup on quality improvement of EXFOR
 - ✓ Plans for JEFF3.2
 - ✓ New version of the nuclear data tool **JANIS-3**

Find more information on www.nea.fr