

ADVANCE

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BROOKHAVEN
NATIONAL LABORATORY

a passion for discovery



U.S. DEPARTMENT OF
ENERGY

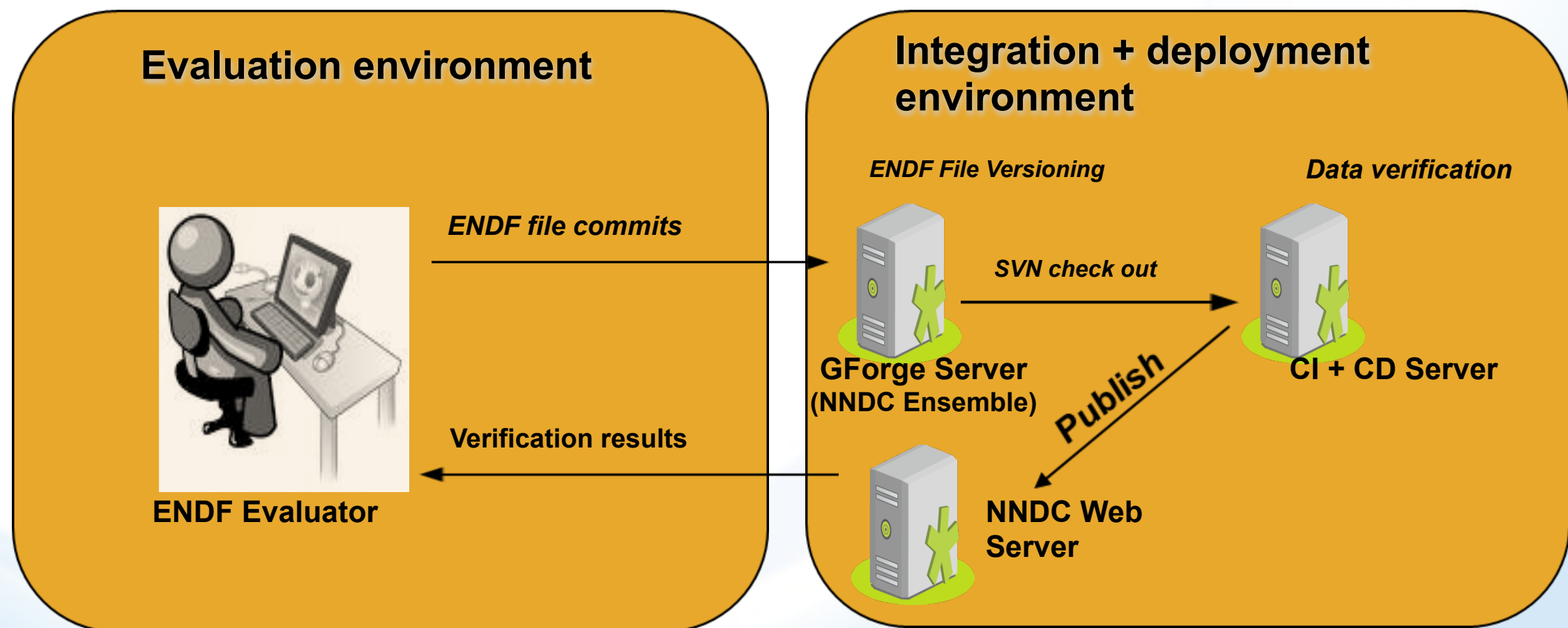
Office of
Science

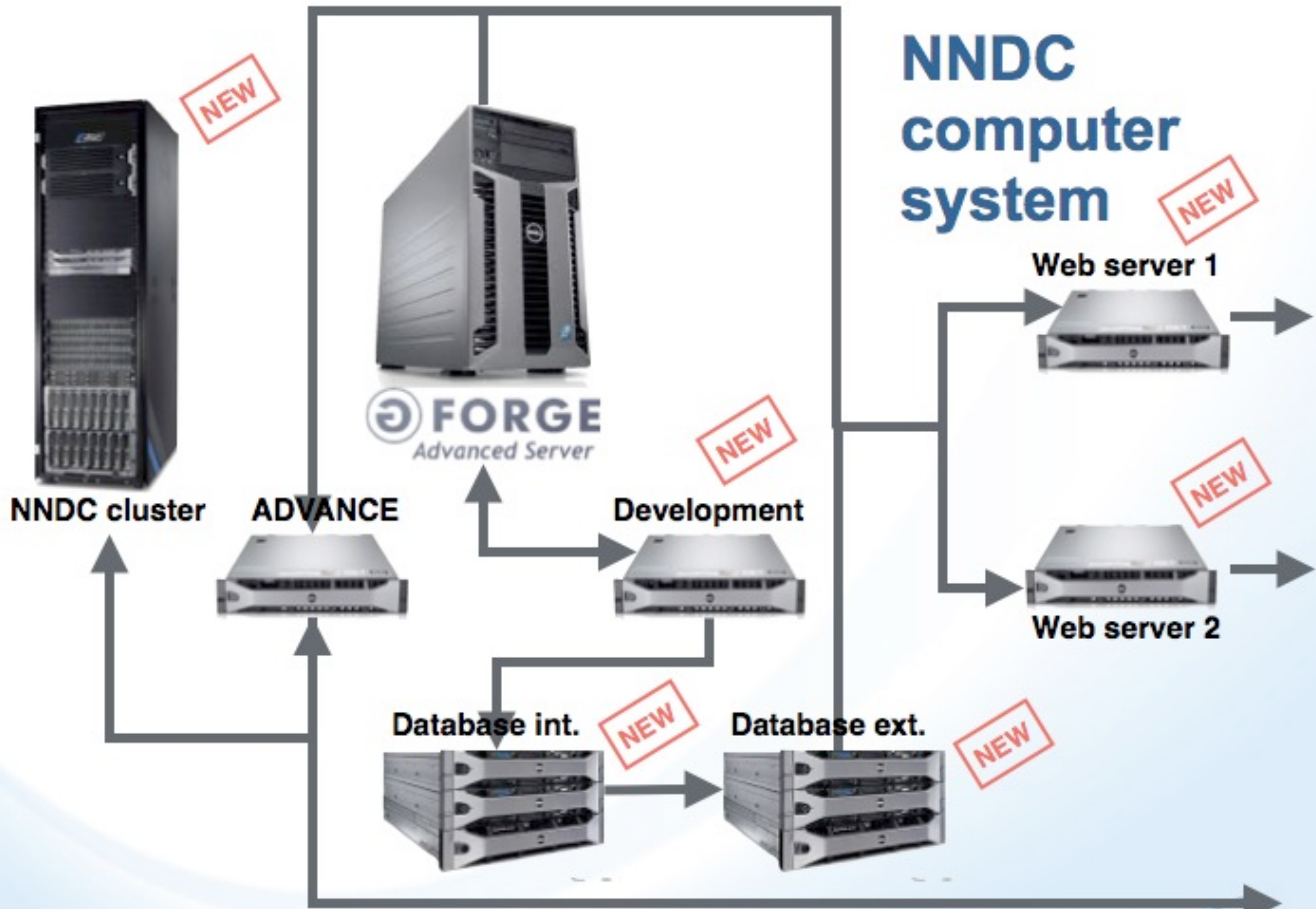
ADVANCE system for ENDF quality assurance

- Our answer to the problem of ensuring all ENDF files get checked
- Every commit, all changed files subjected to a battery of tests including
 - NNDC checking codes (PSYCHE, CHECKR, FIZCON, STANEF, STAN and INTER)
 - NJOY
 - Fudge
 - PREPRO
- Results are collected and presented in a (hopefully) easy to use HTML report, available at <http://www.nndc.bnl.gov/endf/b7.dev/qa/index.html>

Current ADVANCE system

- Single elderly machine (2 proc. x 1 core, 6 Gb, 2.9 GHz)
- Upgrading to old NNDC www1 (2 proc. x 4 core, 64 Gb, 3.2 GHz); roughly factor 6 speedup
- Old ADVANCE machine will become test-bed





ADVANCE: The ENDF Continuous Integration System

ENDF
B-VII.dev

ENDF/B Development

The development version of the
Evaluated Nuclear Data File (ENDF/B)

Latest Updates

sublib_release_notes: neutrons
Report sublib_release_notes on neutrons
generated. The result was a SUCCESS
2013-04-30 16:57:39.661872

sublib_html: neutrons
Report sublib_html on neutrons generated. The
result was a SUCCESS
2013-04-30 16:52:01.501892

sublib_release_notes: neutrons
Report sublib_release_notes on neutrons
generated. The result was a SUCCESS
2013-04-30 15:41:29.746913

Neutrons

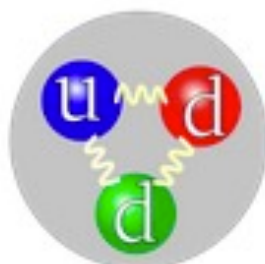
Decay

Charged particles

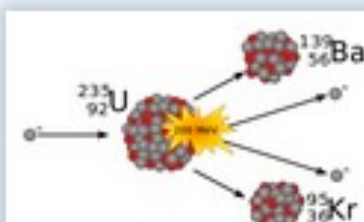
Photonuclear

Atomic

Neutrons sublibraries

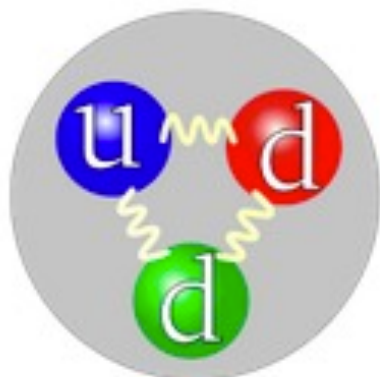


Neutrons Sublibrary

Neutron-Induced Fission
Yields Sublibrary

Standards Sublibrary

Thermal Neutron
Scattering Sublibrary



Neutrons Sublibrary

ENDF/B Development Library

- ▶ General Information:
 - ▶ ENDF sublib designator: 10
- ▶ Revision Number: 611M
- ▶ Last Modified Revision: 532:611M
- ▶ Build Status:
 - ▶ Build status: **ERROR**
 - ▶ Build time: 2013-04-30 16:52:01.394282
 - ▶ Listfile: [neutrons.list](#)
 - ▶ Release Notes: [neutrons-releaseNotes.pdf](#)
- ▶ GForge Links:
 - ▶ Browse [SVN](#)
 - ▶ Browse sublibrary [tracker](#)

Latest Updates

sublib_release_notes: neutrons

Report sublib_release_notes on neutrons generated. The result was a SUCCESS
2013-04-30 16:57:39.661872

evaluation_summary: n-098_Cf_251.endf

Code evaluation_summary completed run on n-098_Cf_251.endf. The result was a SUCCESS
2013-04-30 16:52:41.503573

sublib_html: neutrons

Report sublib_html on neutrons generated. The result was a SUCCESS
2013-04-30 16:52:01.501892

Summary
of all bugs

RSS
activity
feed

Periodic Table

Material List

1 H								X								2 He	
3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe

- Build status: **ERROR**
- Build time: 2013-04-30 16:52:01.394282
- Listfile: [neutrons.list](#)
- Release Notes: [neutrons-releaseNotes.pdf](#)

Report sublib_html on neutrons generated. The result was a SUCCESS
2013-04-30 16:52:01.501892

► GForge Links:

- Browse [SVN](#)

Pu									
Status	Material	MAT #	Revision #	# Tests	# Failures	# Errors	Lab.	Date	Authors
☐	²³⁶ Pu	9428	603	756	0	44	JAEA+	FEB10	O.Iwamoto, T.Nakagawa, et al.
☐	²³⁷ Pu	9431	603	1398	0	136	JAEA+	FEB10	O.Iwamoto, T.Nakagawa, et al.
☐	²³⁸ Pu	9434	597	1004	0	180	LANL	SEP10	YOUNG, TALOU, KAWANO, KAHLER, CHADWIC
☐	²³⁹ Pu	9437	591	1508	0	68	LANL	SEP06	Young, Chadwick, MacFarlane, Derrien
☐	²⁴⁰ Pu	9440	532	1298	0	216	LANL	SEP09	YOUNG, TALOU, CHADWICK, KAHLER, KAWAN
☐	²⁴¹ Pu	9443	532	924	0	10	ORNL	OCT03	L.Weston, R.Wright, H.Derrien , et al.
☐	²⁴² Pu	9446	603	1268	0	108	BNL+JAEA	AUG11	S.F. MUGHABGHAB , et al. O.Iwamoto, etal
☐	²⁴³ Pu	9449	597	536	0	24	SRL,LLNL	JUL76	Benjamin, McCrosson, Howerton
☐	²⁴⁴ Pu	9452	603	846	0	60	JAEA+	FEB10	O.Iwamoto, T.Nakagawa, , et al.
☐	²⁴⁶ Pu	9458	603	850	0	60	JAEA+	FEB10	O.Iwamoto, T.Nakagawa, et al.

* Lanthanides (Lanthanoids)	57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu
** Actinides (Actinoids)	89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr

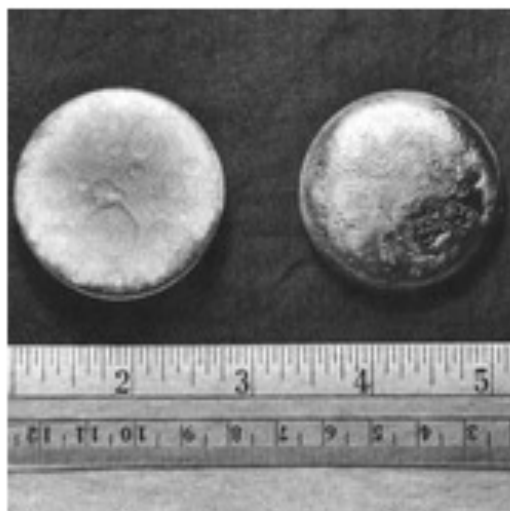


Image of plutonium from <http://images-of-elements.com/>

239 Pu

Neutrons Sublibrary

- ▶ General Information:
 - ▶ ENDF MAT designator: 9437
 - ▶ Evaluated by Young, Chadwick, MacFarlane, Derrien (LANL), SEP06
 - ▶ Natural abundance: 0.0 +/- 0.0 %
 - ▶ Check out Wikipedia's entry for [plutonium](#)
- ▶ Revision Number: 611M
- ▶ Last Modified Revision: 532:611M
- ▶ Build Status:
 - ▶ Build status: **ERROR** (Submit tracker item)
 - ▶ Build time: 2013-04-30 06:17:38.108808
- ▶ GForge Links:
 - ▶ Browse [SVN](#)
 - ▶ View current [revision](#)
 - ▶ Download current [revision](#)

Latest Updates

evaluation_summary: n-094_Pu_239.endf
Code evaluation_summary completed run on n-094_Pu_239.endf. The result was a SUCCESS
2013-04-30 06:17:39.392055

njoy2012: n-094_Pu_239.endf
Code njoy2012 completed run on n-094_Pu_239.endf. The result was a ERROR
2013-04-30 06:17:36.872836

inter: n-094_Pu_239.endf
Code inter completed run on n-094_Pu_239.endf. The result was a SUCCESS
2013-04-30 06:10:24.995505

RSS
activity
feed

GForge
links

Code Results

ENDF Overview

ACE Overview

Integral Quantities

Cross Section Plots

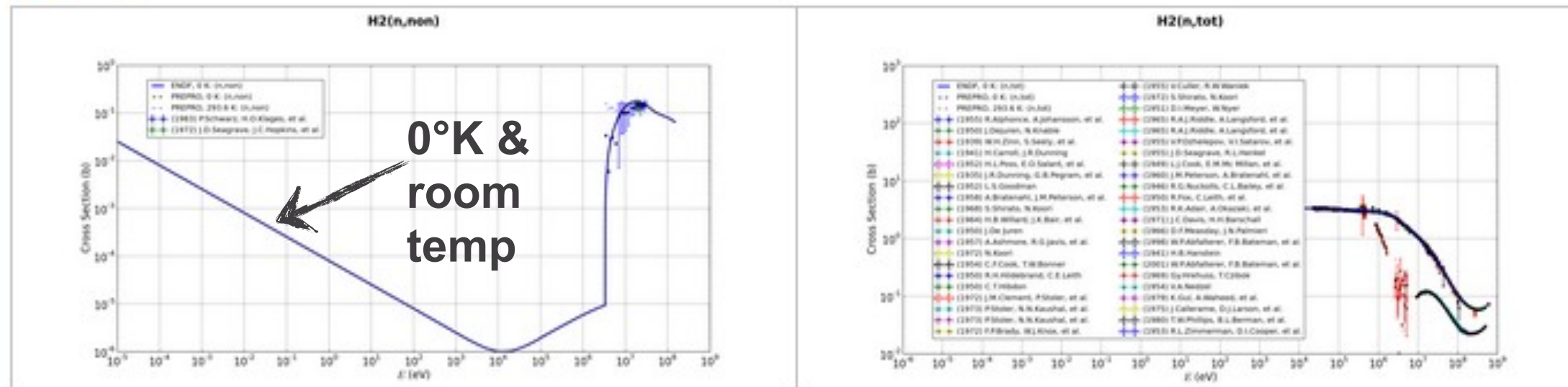
Summary of all tests on this evaluation.

Use checking code button to show/hide errors.

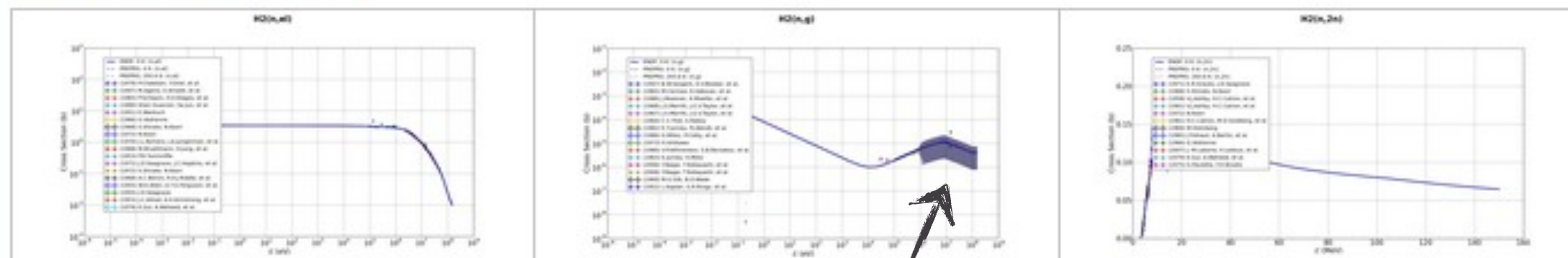
Status	Code	# Tests	# Failures	# Errors	Run time (sec)	Files
✓	STAN	0	0	0	31.533	STN File
✓	STANEF	0	0	0	29.316	

Comparison between cross section data in this ENDF file and data retrieved from EXFOR

Aggregate channels:



Regular channels:



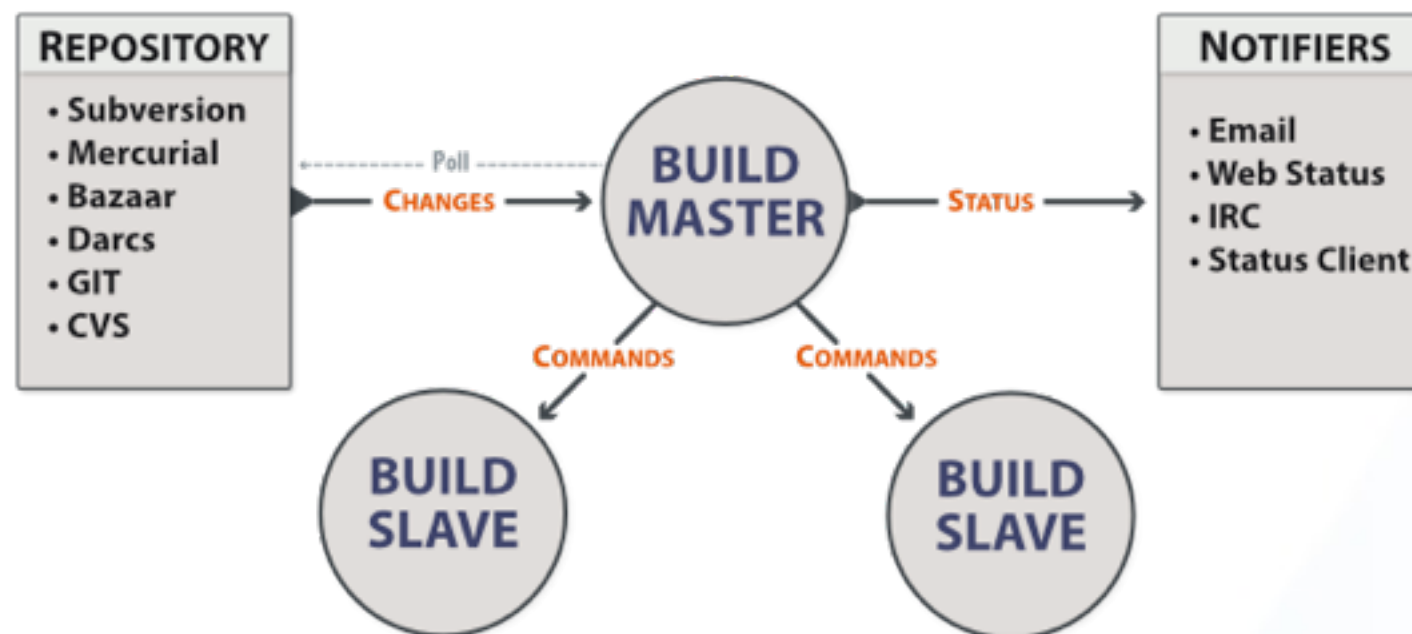
ADVANCE Version 0.7 (svn rev: 669)

To do FY14: current NCSP funding

- **Distributed build using BuildBot** (Office of Science funded)
 - EMPIRE benchmark tests
 - other projects
- **AMPX**
- **Fudge upgrades**
- **NJOY improvements**
 - CP, photonuclear
 - xsdir, full library tarball
- **HTML report improvements**
 - bug fixes
 - js, css independence
- **Bug fixes/maintenance**
- **If time, CALENDF**

Moving to a distributed system

- Builds coordinated by ADVANCE server



- Slave nodes do work (ADVANCE server is master & slave)



- NNDC cluster main node will be slave too...

To do FY14: if get NCSP bump up

■ Benchmarking

- integrate LLNL's cnp_test_suite (thanks M.-A. Descalle)
- MCNP testing
 - MCNP input formatter/output parser
 - Rus Mosteller suite
- SCALE testing
 - SCALE input formatter/output parser
 - SCALE built in suite
- COG testing (thanks D. Heinrichs)
 - COG input formatter/output parser
 - Ed Lent suite
- keff regression report

ENDF Project Pages

- **Reorganized the set of ENDF web pages:** <http://www.nndc.bnl.gov/endl/project.html>
- **Compiling ENDF history back to ENDF/B-I**
 - Data files
 - Lab reports (BNL & others)
 - Formats
- **Links to ENDF development pages**
- **ENDF QA Page:** <http://www.nndc.bnl.gov/endl/b7.dev/qa.html>
 - Includes ADVANCE requirements document
 - Various ENDF QA requirements documents