

# NNDC Report FY2011

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National Nuclear Data Center  
Brookhaven National Laboratory  
*Nuclear Data Week, Nov. 14-18, 2011*

**BROOKHAVEN**  
NATIONAL LABORATORY

*a passion for discovery*



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science

# NNDC Personnel Status

## Personnel changes

- ☒ Pavel Oblozinsky retired April 2011, staff position, reaction data
- ☒ Marco Pigni left NNDC in April 2011, staff position, reaction data
- ☒ Elizabeth McCutchen joined NNDC in May 2011, staff position, structure data
- ☒ Annalia Palumbo joined NNDC in June 2011, postdoc position, nuclear reaction data
- ☒ Gustavo Nobre joined NNDC in June 2011, postdoc position, nuclear reaction data
- ☒ David Brown joined NNDC in August 2011, staff position, nuclear reaction data

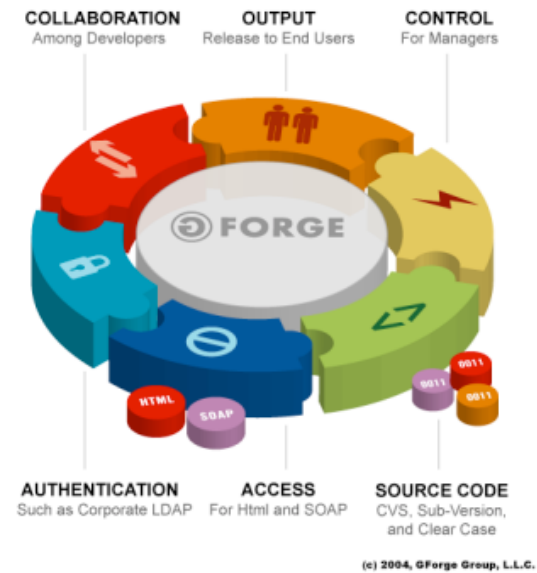
Staff	FTE	Heads (30/9/11)	FTE (USNDP)
Permanent	8.05	9	5.23
Temporary	0.50	2	0.30
Professional	3.73	4	3.73
Contractors	2.50	12	2.50
<b>Total</b>	<b>14.78</b>	<b>27</b>	<b>11.76</b>

FY2010

Staff	FTE	Heads	FTE (USNDP)
Permanent	7.35	10	6.00
Temporary	2.33	2	2.33
Professional	3.70	4	3.70
Contractors	2.25	10	2.25
<b>Total</b>	<b>15.63</b>	<b>26</b>	<b>14.28</b>

# GForge server

- Number of projects: 27
  - Structure: 11
  - Reactions: 16
- Number of accounts: 67
  - Structure: 18
  - Reactions: 49
- Most downloaded (1/1/10–11/9/11)
  - ENDF-6 Manual: 1,239 times
  - ENDF/B-VII.1: 1,108 times
    - Beta0: 394
    - Beta1: 67
    - Beta2: 139
    - Beta3: 250
    - Beta4: 215
    - Beta5: 43



- Immediate plans - link current SVN versions from the NNDC Web site
  - STANEF
  - CHECKR
  - FIZCON
  - PSYCHE
  - ENDF-6 Manual

# New GForge server

(since October 18, 2011)

- Processors: Intel Xeon, two 6-core, 3.46 GHz each
- RAM: 64 Gigabytes
- Total Disk Storage: 15.2 Terabytes
- Network Card: 1 Gigabit/sec
- Collaboration Software: GForge Professional Server 6.0



## Old GForge server

- Processor: Intel Xeon, one quad-core, 2.5 GHz
- RAM: 8 Gigabytes
- Total Disk Storage: 300 Gigabytes
- Network Card: 1 Gigabit/sec
- Collaboration Software: GForge Professional Server 5.6

# Coordination and reporting

- CSEWG-USNDP Annual Meetings held in Santa Fe (Nov 2010)  
Summary and Minutes issued (Jan 2011)
- USNDP Budget Briefing FY13 held at DOE-SC (Feb 2011)
- USNDP Report FY10 & Workplan FY12 issued (March 2011)
- **Work on Report FY11 will start in November**
- **Work on Work plan FY13 will start early next year**

**Web based!**  
**Web based!**

The image shows three overlapping document thumbnails. The leftmost thumbnail is titled "Budget Briefing FY2" and lists "Contents" with items: 1. Presentations, 2. Accomplishments, 3. Budget Justification, and 4. Budget Spreadsheets FY1. The middle thumbnail is titled "USNDP Work Plan for Fiscal Year" and lists "Prepared by: Michal Herman, National Nuclear Data Center, Brookhaven National Laboratory, February 2010". The rightmost thumbnail is titled "Annual Report for FY2010" and lists "Prepared by: Michal Herman, National Nuclear Data Center, Brookhaven National Laboratory, March 2011". It also includes a list of contributors: "With contributions from: Allan D. Carlson, NIST; Richard Firestone, LLNL; Toshiko Kawano, LLNL; John Kelley, TUNL; Filip G. Kordeck, ANL; Brian Singh, McMaster U.; Michael Smith, ORNL; Alejandro Sorozgiri, INEL; Neil Summers, LLNL". All thumbnails include the website "www.nndc.bnl.gov/usndp".

# Databases and services



- Data retrievals increased by 17%; 2.771 million retrievals in FY11
- Covariance review system (COMMARA-2, beta4, beta5)
- Sigma-3.2 released in October 2010
  - JENDL-4.0 evaluated neutron library.
  - Improved mathematical operations.
- myENSDF and myENDF Web sites (uploading user data and running codes on the NNDC server)
- Active communication with users available for NNDC-general, CSISRS, ENDF, Wallet Cards

**MyENDF: integrated Web-tool for evaluators**  
by V.Zerkin, IAEA-NDS, 2010-2011

Upload your ENDF data file, run remotely ENDF utilities, plot and compare your data with EXFOR and ENDF databases  
Checkr, Fizcon, Stanef, Psyche, Inter, Prepro, Endver, ZVView, Web-EXFOR-ENDF

Submit    Reset     Submit in new Window

Your name (optional):

Your ENDF File:  n-040\_Zr\_090.endf

Your ENDF file. Examples: [text](#) | [web-links:txt](#) | [e6](#) | [b5std](#) | [zip](#) | [CGI](#) | [ftp](#)

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Web and Database Programming: Viktor Zerkin, NDS, International Atomic Energy Agency (V.Zerkin@iaea.org)  
Last updated: 10/31/2011 15:49:07

*More details in talk by Boris*

# ENSDF

**5 mass chains completed and submitted (4 NNDC, 1 collaboration)**

## **Evaluated:**

- A= 62 (8 nuclides Nichols,Tuli; \*Canada)
- A=143 (16 nuclides, Browne,Tuli)
- A=148 (15 nuclides, Nica)
- A=220 (8 nuclides, Browne,Tuli)
- A=246( 8 nuclides, Browne,Tuli)
- Trieste (8 nuclides, Browne,Johnson,Sonzogni,Tuli)

\*collaboration

NNDC share of nuclides =63, (last year= 92)

**Published:** 5 mass chains (A=99,142,161,220,246)

**Reviewed:** 11 mass chains

Browne 2(27,85); Basu 1(99); McCutchan 1(192); Nica 1(150); Nichols 1(207); Reich 1(92); Sonzogni 1(61); Tuli 3(143,220,245)



# ENDF/B-VII.1

- Preparation for the release of ENDF/B-VII.1
  - maintaining GForge ENDF/B site
  - ENDF/B-VII.1beta1,2,3,4,5 releases
  - phase 1 testing on each beta version
  - integral testing of the whole library with LANL suite of 119 benchmarks
  - QA procedure and corrections
  - covariance review Web site;
  - review of covariances (98 nuclides)
- NNDC contribution to ENDF/B-VII.1
  - set of AFCI-related covariances
  - Zr evaluations
  - Tl evaluations
  - Tm evaluations
  - decay data sublibrary (3817 nuclides)



# NNDC Compilations

## NSR (Pritychenko, Betak\*)

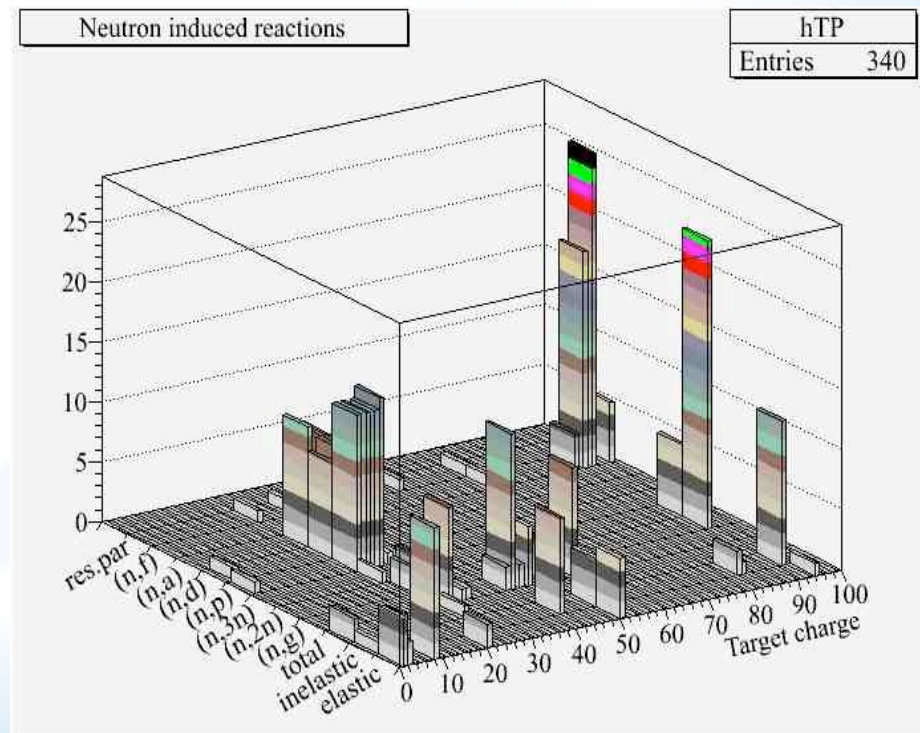
- 3802 entries (last year 3818)
- 2191 key-worded

## EXFOR (Hlavac\*, Schwerer\*)

- 104 papers compiled (last year 126)

\*) contractors

Incident particle	No of entries
neutron	40
charged	53
gamma	11



# Major changes in EMPIRE code (278 Svn commits in FY11)

- OPTMAN CC code implemented
- Upgrade of checking codes
- Direct access to C4 file with exp data instead of fancy but unstable MySQL retrieval
- KERCEN code included in the source (not linked through the GUI)
- Thorough work on tightening cross section balance
- New parametrization of EGSM level densities

## EMPIRE-3.1 (Rivoli) Release in Dec.2011/Jan.2012



# Major publications

- 11 issues of NDS with A-chain evaluations
- Special issue on ENDF/B-VII.1 to be published in Dec. 2011 (editorial work Oblozinsky/Pritychenko)
  - ENDF/B-VII.1 Nuclear Data for Science and Technology: Cross Sections, Covariances, Fission Product Yields and Decay Data (NNDC contribution)
  - Neutron Cross Section Covariances for Structural Materials and Fission Products (NNDC)
  - +
- Wallet Cards 2011 (in print)

**NUCLEAR WALLET CARDS**  
 April 2005  
 Jagdish K. Tuli  
 National Nuclear Data Center  
[www.nndc.bnl.gov](http://www.nndc.bnl.gov)  
 Brookhaven National Laboratory  
 P.O. Box 5000  
 Upton, New York 11973-5000  
 U.S.A.

Volume 112, Number 12, December 2011 ISSN 0090-3752

**Nuclear Data Sheets**

*A Journal Devoted to Compilations and Evaluations of Experimental and Theoretical Results in Nuclear Physics*

J.K. Tuli  
National Nuclear Data Center, Brookhaven National Laboratory, Upton, NY 11973-5000, USA  
[www.nndc.bnl.gov](http://www.nndc.bnl.gov)

**Special Issue on ENDF/B-VII.1 Library**  
Special Issue Editor: Pavel Oblozinsky

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Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

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