



USNDP Annual Meeting, Nov 7-9, 2007

NNDC Report

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NNDC Operations

Personnel

1. Marco Pigni (from Vienna) joined the NNDC on Jan 10, 2007
Postdoc position on cross section covariance data
2. Dave Winchell left the NNDC on May 30, 2007
Manojeeet Bhattacharya (from NASA) took over
6 weeks overlap with Dave
3. Dimitri Rochman left the NNDC on August 15, 2007
Search for his replacement is underway, offer expected in Dec

Coordination and reporting

1. CSEWG-USNDP Annual Meetings'06 held (Nov 2006)
Summary (hardcopy) and Minutes (web) issued (Dec 2006)
2. USNDP Report FY06 & Workplan FY08 issued (Feb 2007)
3. USNDP Budget Briefing FY09 held at DOE-SC (Mar 2007)
4. Work on Report FY07 will start after this meeting
5. Work on Workplan FY09 will start early next year

Databases and Services

Database management

- NSR, XUNDL, ENSDF, NuDat maintained and distributed regularly
- CSISRS/EXFOR database maintained regularly
- Major achievement: **Release of ENDF/B-VII.0 in December 2006**

NNDC Web service, *more details in talk by Boris*

- Data retrievals increased by 26%, 1.39 mil retrievals reached in FY07
 - Driven by NuDat and Chart of Nuclides, retrievals up by 43%
 - CSISRS + ENDF retrievals up by 34%
- New products
 - Sigma-1.0 released in April 2007, new ENDF interface (NuDat-like)
 - NuDat-2.3 and 2.4, improved versions released
- Active communication with users
 - Available for NNDC-general, CSISRS, ENDF, Wallet Cards

Nuclear Structure Data

ENSDF evaluations

- Completed and submitted 6 mass chains (5 NNDC, 1 collaboration), NNDC share = 77 nuclides (last year 89)
 - ✓ A = 45 (12 nuclides Burrows)
 - ✓ A = 49 (13 nuclides Burrows)
 - ✓ A = 96 (7 nuclides Sonzogni, collaboration)
 - ✓ A = 137 (16 nuclides Browne/Tuli)
 - ✓ Nuclides (2 nuclides Tuli)
 - ✓ A = 162 (16 nuclides Reich)
 - ✓ Nuclides (2 nuclides Reich)
 - ✓ A = 230 (9 nuclides Browne/Tuli) – in ENSDF
- Published 6 mass chains in NDS + 1 in ENSDF
 - ✓ A = 47, 137, 140, 162, 221, 230 (in ENSDF), 234
- Reviewed 7 mass chains
 - ✓ A = 196 (Browne), 140 (Burrows), 106, 200 (Reich),
 - ✓ A = 135 (Sonzogni), 55, 104 (Tuli)

Nuclear Structure Data, ctn'd

NSR bibliography compilation, *more details in talk by Manojeeet*

- Compiled 2,870 keyword abstracts; 4,396 papers in total
- 3 European journals compiled by the IAEA Nuclear Data Section
- Considerable backlog at IAEA has been fully cleared in Oct 2007

NuDat, *more details in talk by Alejandro*

- Upgrade to NuDat-2.3 and NuDat-2.4
- The most successful web product (combined with Chart of Nuclides)

ENSDF processing and maintenance

- On average ~21 mass chains are in the production pipeline
- Currently 3,020 nuclides in ENSDF (last year 2,992)

Nuclear Data Sheets, vol. 102 (2007)

- 11 issues published on ENSDF evaluations, number of pages 2588
- 1 issue devoted to neutron cross sections, 167 pages (6.1% of total)

Nuclear Reaction Data

CSISRS compilation (experimental data)

- 136 papers compiled (36-n, 100-cp, 0- γ papers, total 566 reactions)
(Last year 179 papers, 708 reactions)

Evaluation methodology, *more details in talk by Mike*

- Further development of Empire
 - Isomers, improved fission, improved level densities
 - Extensive paper on Empire-3.0 written, to appear in NDS Dec 2007
- Progress made on covariance methodology
 - Atlas-Empire-Kalman method improved
 - Techniques developed for theory-based estimates in fast region
 - Analytical approach explored for resonance region

Nuclear Reaction Data, ctn'd

Covariance evaluations, *more details in talk by Marco*

- Covariance estimates for 35 materials, advanced reactor systems
- Low fidelity covariances for 219 fission products in fast neutron region, nuclear criticality safety

Covariance processing, *more details in talk by Ramon*

- Processed all covariance data in 4 major evaluated libraries
- Web interface developed with graphical representation of covariances