

NRDC Meeting, Beijing, June 7-10, 2016

# NNDC report to NRDC

M. Herman  
B. Pritychenko



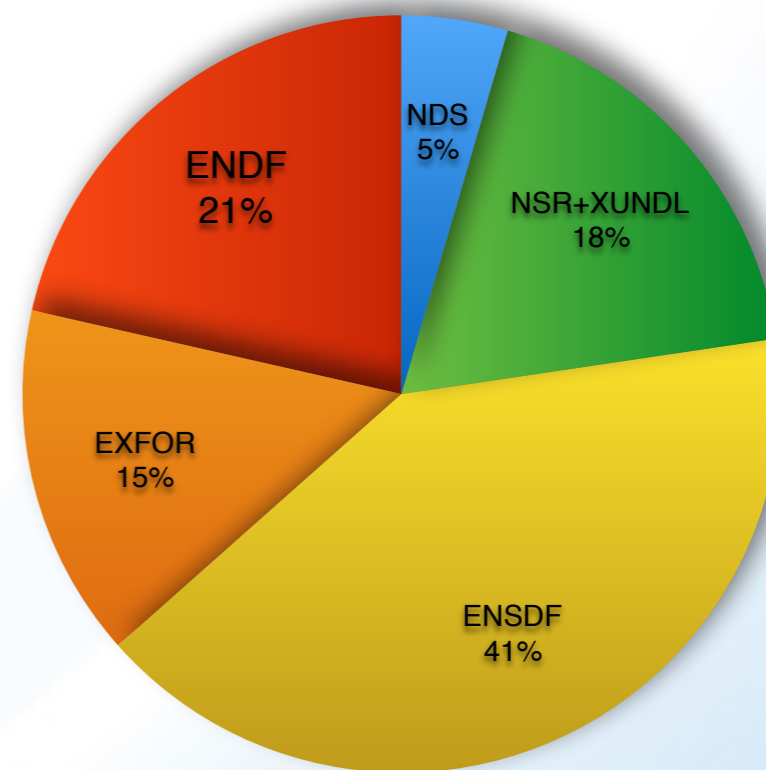
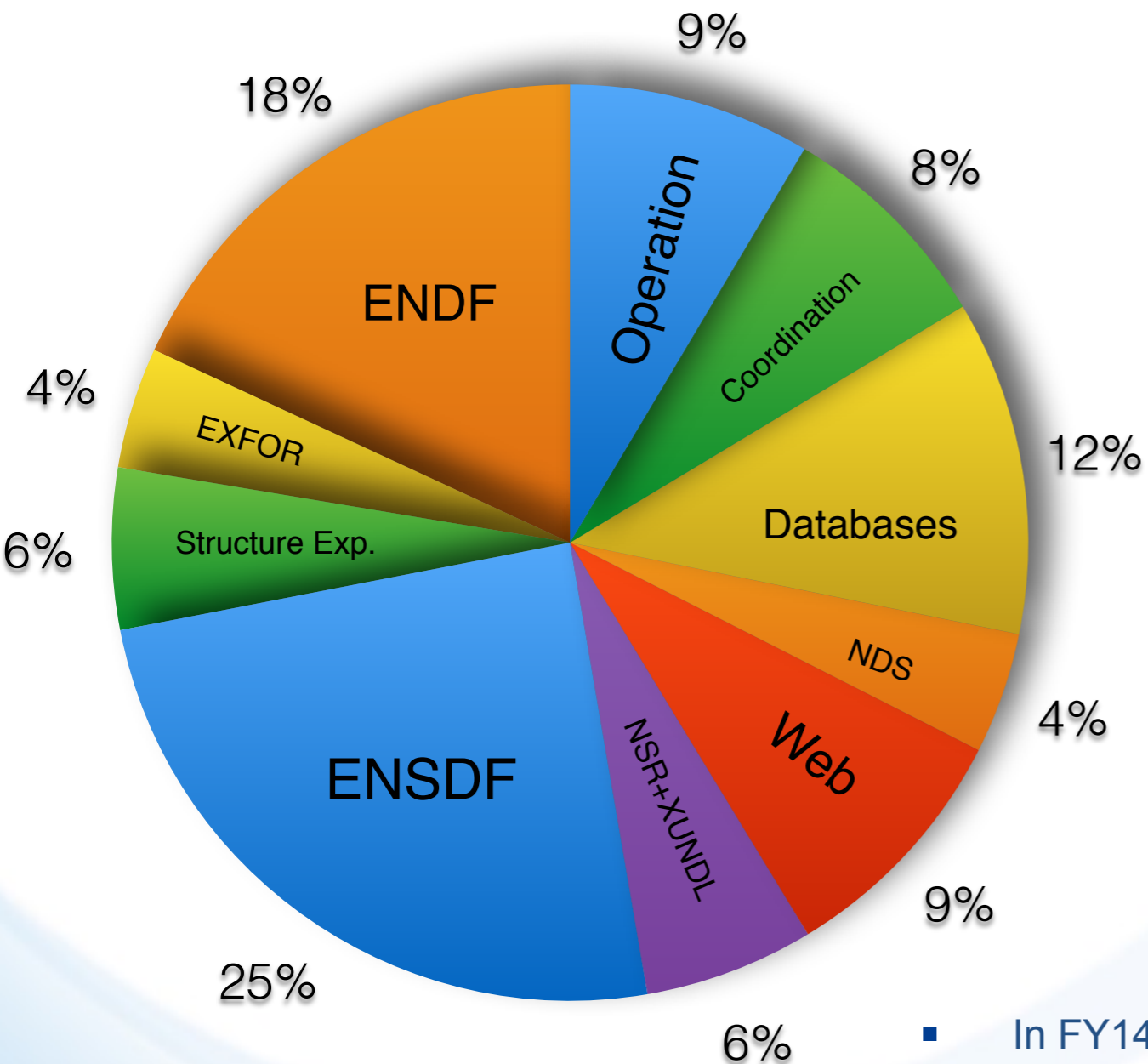
# NNDC staff

Ph. D. Permanent 7.02

FY2015

Staff	FTE	Heads	FTE-NCSP
Permanent	7.02	8	0.30
Postdoc	0.71	0	0.00
Professional	2.82	3	0.18
Contractors	2.60	8	
<b>Total</b>	<b>13.15</b>	<b>19</b>	<b>0.48</b>

Ph. D. Temp. 3.31  
postdoc + contractors



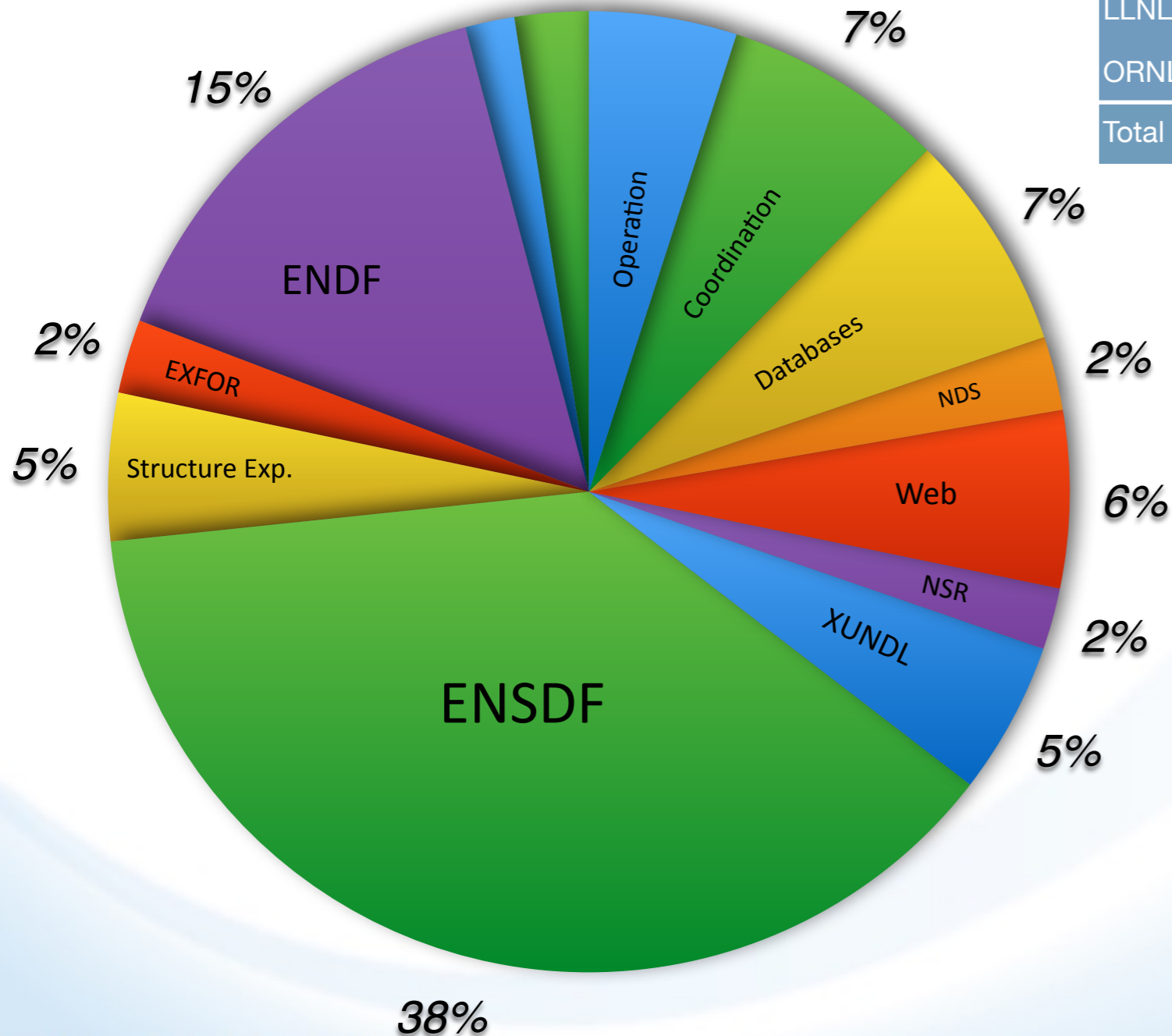
- In FY14 NNDC lost 1 postdoc
- In FY15 NNDC lost 1 postdoc & 1 prof.

# USNDP

## Ph.D. Perm. 12.08

Reaction Exp.

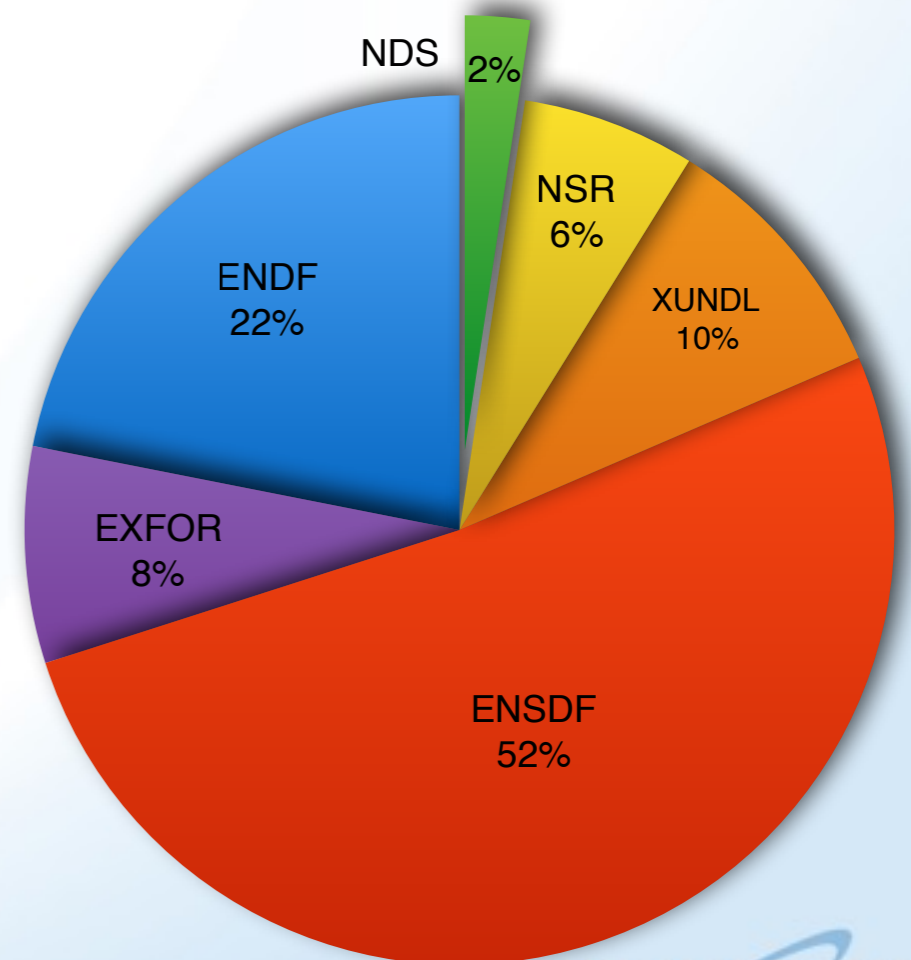
Astrophysics 2% 2% 5%



## USNDP FTE FY2015

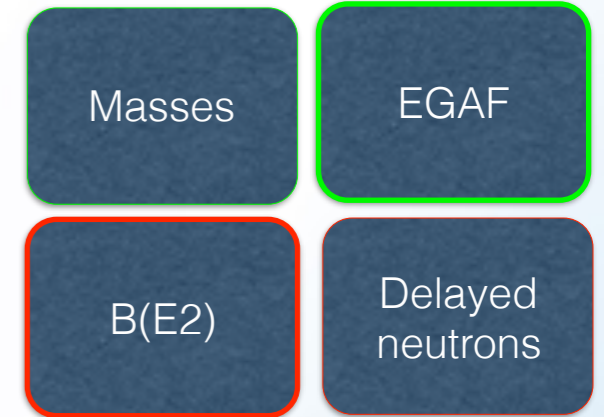
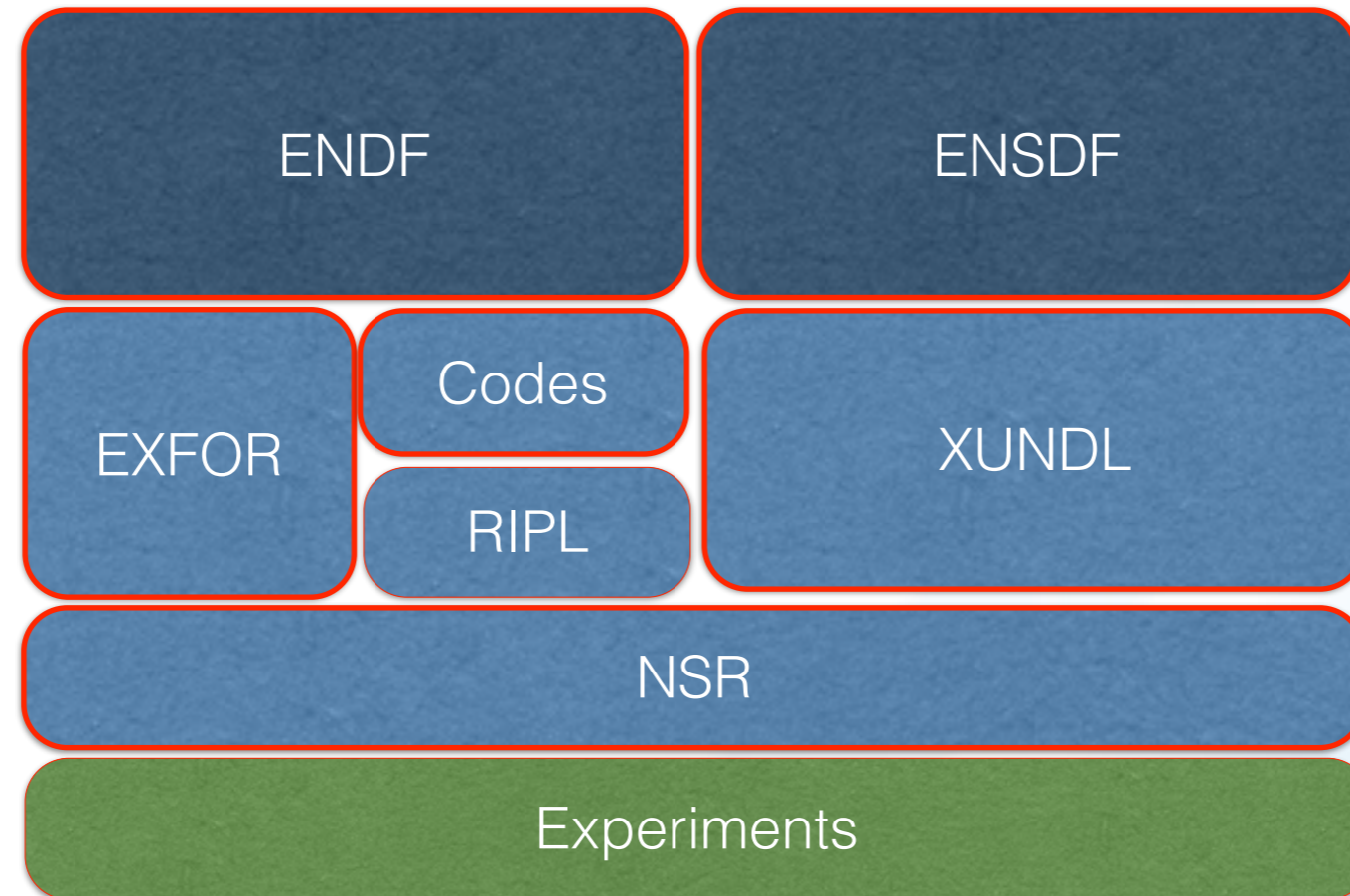
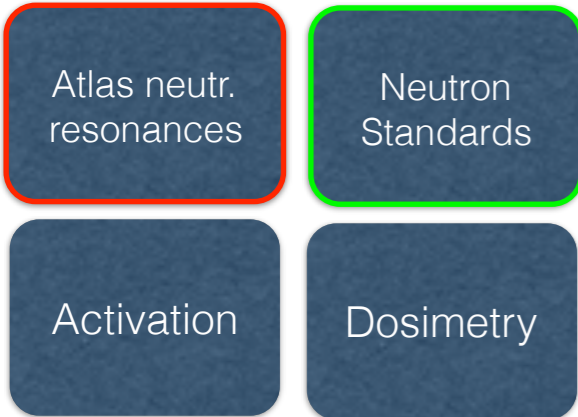
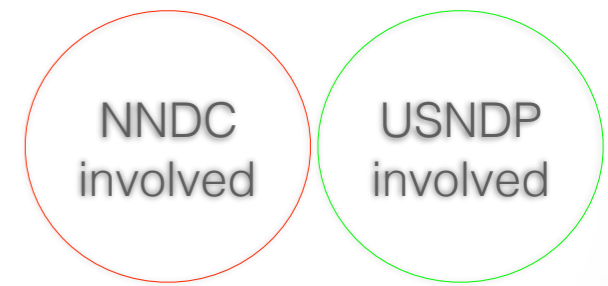
	Ph.D.	Ph.D. Temp.	Prof.
Universities	0.85	0.60	0.75
ANL	0.80	1.00	
BNL	7.02	3.31	2.82
LANL	1.10	0.15	
LBNL	1.00	2.03	
LLNL	0.11	0.01	
ORNL	1.20	0.15	0.10
<b>Total</b>	<b>12.08</b>	<b>7.25</b>	<b>3.67</b>

## Ph.D. Temp 7.25





# ND libraries



# USNDP objectives and targets

(slide from the Budget Briefing at DOE)

- Archival of high quality nuclear data for basic nuclear science and technologies.
- Compilation of bibliography data, nuclear reaction and nuclear structure data to NSR, **EXFOR** and XUNDL databases.
- Dissemination of nuclear physics data through Web based services.
- Evaluation of nuclear reaction and structure data for ENSDF and ENDF/B database.
- Advance nuclear reaction modeling in support of data evaluation.
- Maintain/develop nuclear data formats and data verification codes.
- Promote training of new structure and reaction evaluators.

**CORE  
ACTIVITIES**

# NNDC functions

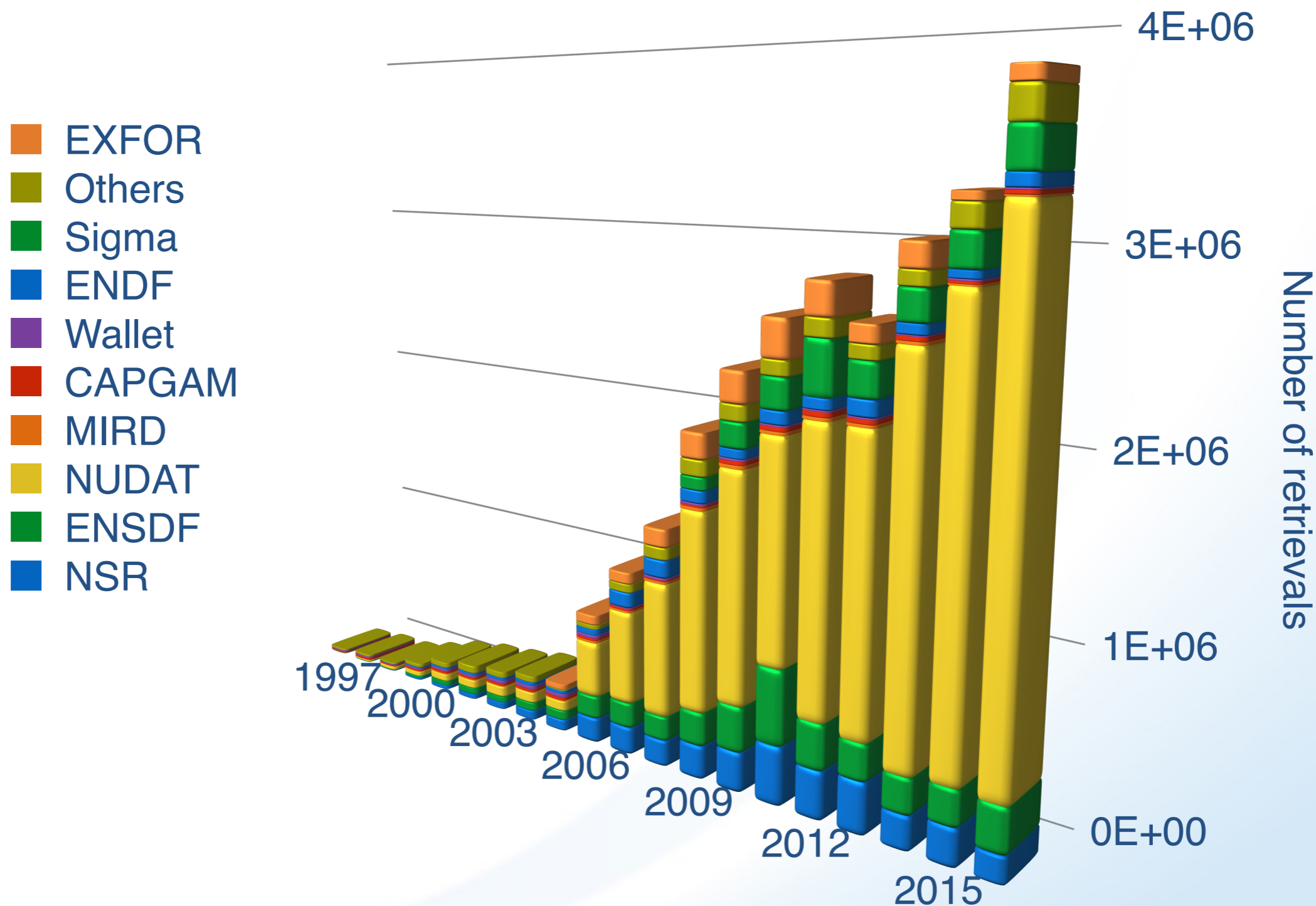
- Dissemination (Web services, retrieval tools, databases, cyber-security)
- Archival (securing ND libraries)
- Database management (NSR, **EXFOR**, XUNDL, ENSDF, ENDF)
- QA (ENDF verification & validation)
- Traditional library (~120 requests/year)
- ND formats (maintenance and development (GND))
- Computation facility (180-CPU cluster - EMPIRE calculations, covariances, ENDF validation)
- GForge server
- ENSDF (evaluation, coordination, management)
- ENDF (evaluation, coordination, management)
- NSR (compilation, coordination, management)
- **EXFOR compilation**
- XUNDL (compilation, coordination, management)
- Reaction code development EMPIRE
- ND targeted experiments
- Cooperation with BLIP
- Nuclear Data Sheets (editorial and management)
- National & international coordination (USNDP, CSEWG, WPEC, **NRDC**, NSDD, INDC)

# NNDC unique responsibilities (in US)

- Dissemination (Web services, retrieval tools, databases, cyber-security)
- Archival (securing ND libraries)
- Database management (NSR, EXFOR, XUNDL, ENSDF, ENDF)
- QA (ENDF verification & validation)
- Traditional library (~120 requests/year)
- ND formats (maintenance and development (GND))
- Computation facility (180-CPU cluster - EMPIRE calculations, covariances, ENDF validation)
- GForge server
- ENSDF (evaluation, coordination, management)
- ENDF (evaluation, coordination, management)
- NSR (compilation, coordination, management)
- **EXFOR compilation**
- XUNDL (compilation, coordination, management)
- Reaction code development EMPIRE
- ND targeted experiments
- Cooperation with BLIP
- Nuclear Data Sheets (editing, preparing camera ready NDS volumes)
- National & international coordination (USNDP, CSEWG, WPEC, **NRDC**, NSDD, INDC)



# Retrievals from NNDC databases





# Overview of EXFOR activities at NNDC

## EXFOR NNDC team

- B. Pritychenko (BNL staff)
- S. Hlavac (long-term contractor, SAS Bratislava)
- O. Schwerrer (long-term contractor, CR Vienna)

## Distribution of work

- Compilation by Stanislav Hlavac & Boris Pritychenko
- Internal checking by Otto Schwerrer
- NNDC project management by Boris Pritychenko

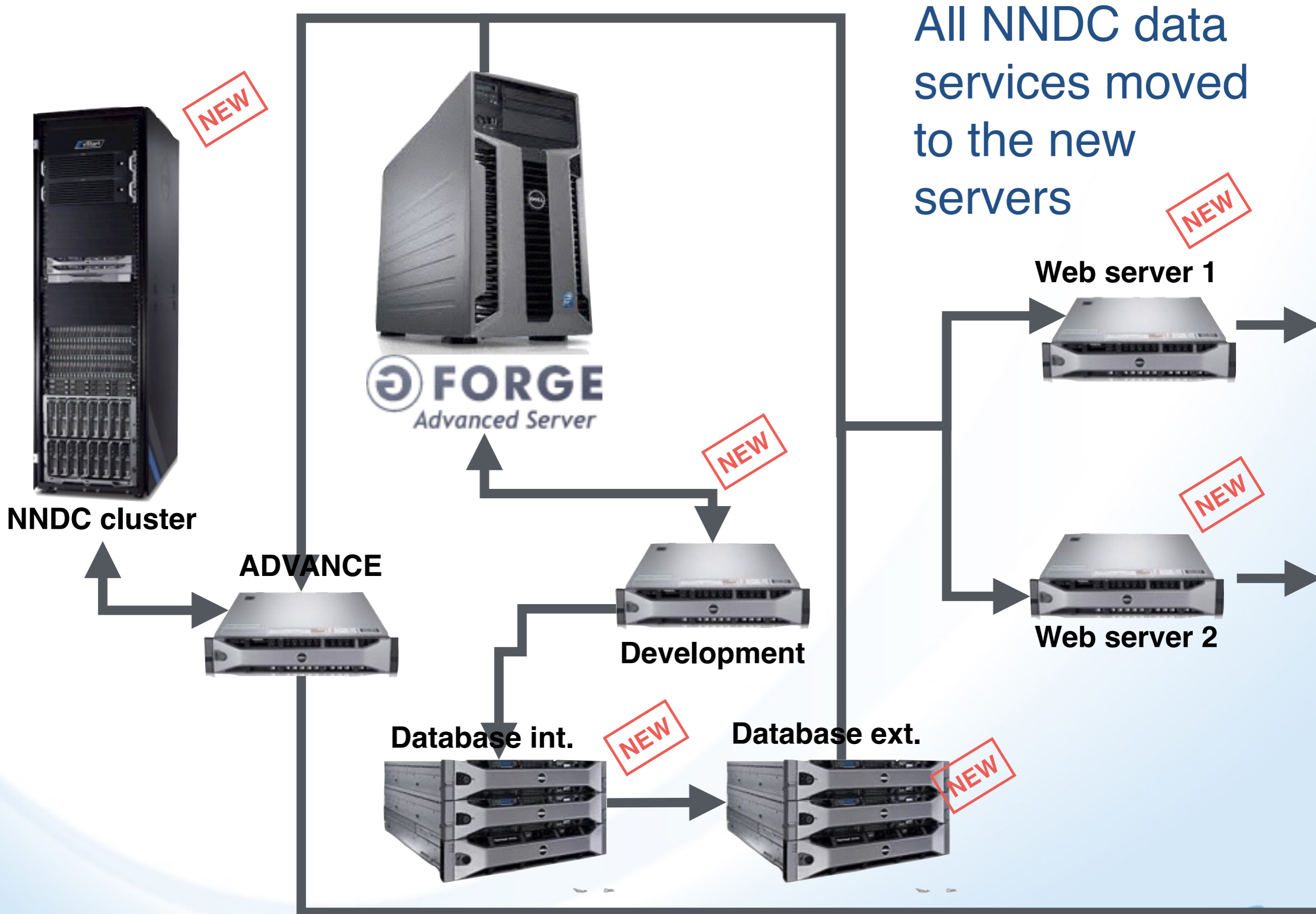
## Compilation statistics in 2015

- Compiled papers **100**
- Corrected entries **45**
- Number of points **337497**

# NNDC moved to the new building

- Library has been reduced keep available on line.
- Scanning reports would cost \$50K - postponed due to funding concerns







# USNDP Review (July 2014)

PROGRAM  
REVIEW

- Excerpts from the closeout bullets
  - “NNDC operates very well as a Data Center; this is an essential national resource”
  - “Given the past organization of USNDP, the NNDC and participating institutions have done a remarkable job trying to define the purpose of the USNDP and coordinate the overall effort.”
  - “The current organizational structure is fairly effective. Both NNDC and partner institutions are well aware of their responsibilities and specific tasks.”



# USNDP Mission Statement



DOE NP and USNDP should jointly develop an updated Mission Statement for USNDP that takes into account stakeholder interests and input. This should be widely distributed to guide future developments.



## USNDP Mission Statement (2014)

*The mission of the United States Nuclear Data Program (USNDP) is to provide current, accurate, authoritative data for workers in pure and applied areas of nuclear science and engineering. This is accomplished primarily through the compilation, evaluation, dissemination, and archiving of extensive nuclear datasets. The USNDP also addresses gaps in the data, through targeted experimental studies and the use of theoretical models.*

# USNDP Advisory Committee



Create an external USNDP Advisory Panel, involving representatives from the major stakeholders across basic and applied nuclear physics, to critically assess current efforts and proposed activities.

## Nuclear Data Advisory Committee (NDAC) established

1. Dennis McNabb (LLNL) - Chair
2. Roberto Capote (IAEA)
3. Michael Carpenter (ANL)
4. Mark Chadwick (LANL)
5. Witek Nazarewicz (ORNL, MSU, UW, ...)
6. Meiring Nortier (LANL)
7. Jasmina Vujic (UCB)

## 1st meeting during ND Week, Nov. 4-5, 2015

- M. Chadwick excused
- W. Nazarewicz represented by E. Ormand (LLNL)

# NDAC suggested priorities

- Core activities aimed at maintaining and updating the flagship ENDF and ENSDF libraries (top priority)
- Data measurement and evaluation in support of DOE operated high energy accelerator Isotope Production Program
- A Midwest group at ANL, MSU and Notre Dame should be considered
- Modernization of the ENSDF infrastructure, including the development of a new structure (format)

# Input on data needs

Submit  
Request

USNDP should devise effective and transparent mechanisms to solicit input and feedback from all stakeholders on nuclear data needs and priorities.

High Priority Request List for Structure and Decay Data - conceptual design ready, implementation started.

ND Advisory Committee

Participation in Long Range Plan preparation

Local communities (e.g., LANL, LLNL, BLIP)

NDNCA Workshop at Berkely, May 2015

ND Working Group led by Cathy Romano

ND Needs for Basic Science Notre Dame August 2016

**Nuclear Data Needs and Capabilities for Applications**  
*May 27-29, 2015*  
*Lawrence Berkeley National Laboratory,*  
*Berkeley, CA USA*

99Mo → 99mTc

U.S. DEPARTMENT OF ENERGY Office of Science