



CSEWG 101

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National Nuclear
Data Center

CSEWG Meeting, Nuclear Data Week 2024

5 November, 2024



@BrookhavenLab

Before ENDF

By 1960, there were many data efforts worldwide

- different formats
- often hard-coded libraries
- proprietary data
- Notable efforts: UKNDL (AWE, UK), NDA library (US), ENDL (LRL, US)

~1962 H. Honeck (BNL), A. Henry (Westinghouse), G. Joanou (GA) met at Colony Restaurant in DC decided on action

- requested Reactor Mathematics and Computation Division of ANS to sponsor 2 meetings to link databases



<http://www.streetsofwashington.com/2013/10/fine-dining-in-washington-dc-in-1950s.html>



The Cross Section Evaluation Working Group produces ENDF/B library



- Formed 1966 & Chaired by BNL
- Currently ~200 members of the collaboration from 25 institutions
 - US programs, industry and international partners
 - If you see something in the library, at some point a sponsor somewhere wanted it
- All steps of nuclear data pipeline coordinated through CSEWG
- Depending on what needs done, getting required data in library can be major effort



Mini-CSEWG meeting, Fuller Lodge, Los Alamos, NM, Aug. 2024

(this is about 1/3 of CSEWG)

We are always open to new users and collaborators

CSEWG Mission

The Cross Section Evaluation Working Group (CSEWG) maintains, updates, extends, validates, verifies, and documents the reference library Evaluated Nuclear Data File Version B (ENDF/B) and establishes standard formats and procedures for its use. CSEWG coordinates differential and integral testing of ENDF/B and utilizes the information for determining the validity of ENDF/B data. CSEWG provides a forum for review of new differential and integral experiments, evaluations and codes that are needed and develops information on specific topics such as Nuclear Data Standards, resonance region formalisms, nuclear model codes, secondary libraries, adjustment results informing future libraries, uncertainty quantification standards, etc. as related to the use of ENDF/B. CSEWG is responsible for distributing this evaluated data and promoting its correct use. CSEWG collaborates and coordinates with other evaluation projects to ensure the success of its mission.

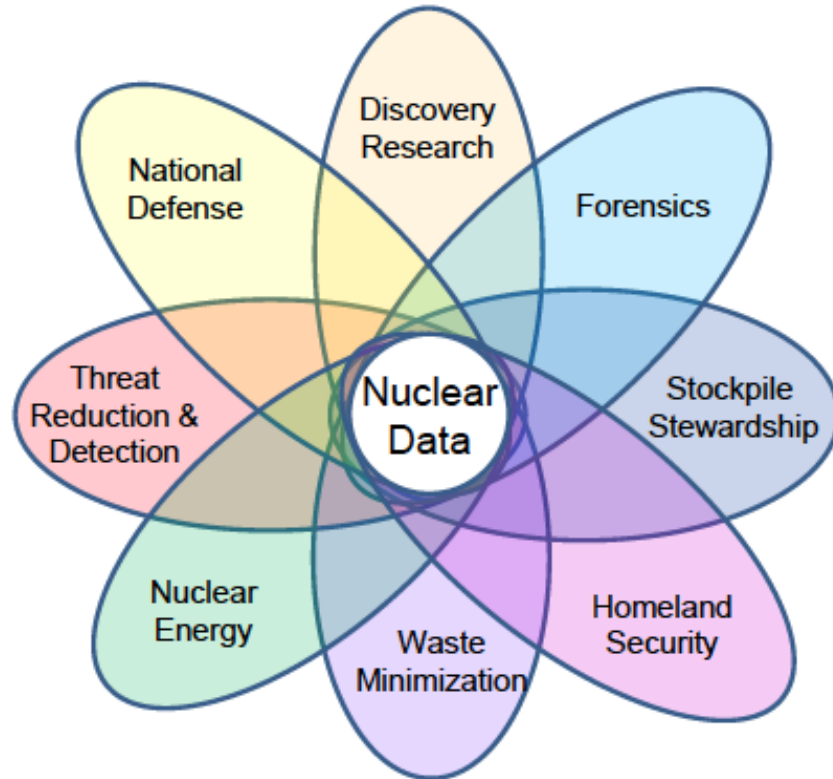
Adapted from S. Pearlstein Memo "NNCSC-CSEWG Flowchart" (1972).

Translation:

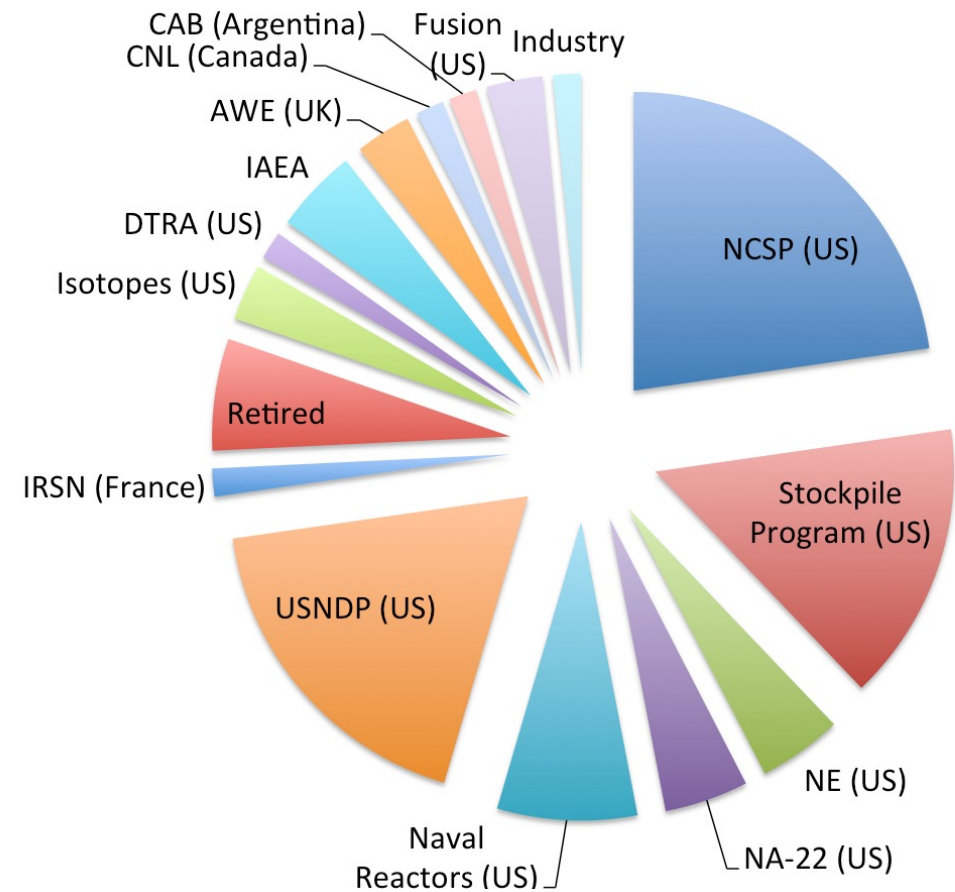
- CSEWG makes ENDF
- CSEWG makes *the best* ENDF
- CSEWG does stuff to make ENDF even more useful
- CSEWG distributes ENDF & wants to make sure ENDF is used correctly
- CSEWG is collaborative

CSEWG is a long standing collaboration between the data users who are also the biggest content providers

Intersections in Nuclear Data



Fraction of evaluations provided for ENDF/B-VIII.0



Dr. Timothy Hallman, Associate Director of the Office of Science for Nuclear Physics
April 5, 2015

By sharing through CSEWG many sponsors reap the benefit of collaboration

Program	Measurement	Theory	Compilation	Evaluation	QA (V&V, IE)	Infrastructure (gitlab, etc.)
DTRA	✓					
International (IAEA,NEA,...)	✓	✓	✓	✓	✓	✓
NA-22	✓	✓		✓		
Naval Reactors	✓			✓	✓	
NCSP	✓	✓		✓	✓	✓
Nuclear Energy					✓	
Other (IP, Fusion, ...)	✓	✓				
Defense Programs	✓	✓		✓	✓	✓
USNDP	✓	✓	✓	✓	✓	✓

All steps of nuclear data pipeline are coordinated through CSEWG

Chair:

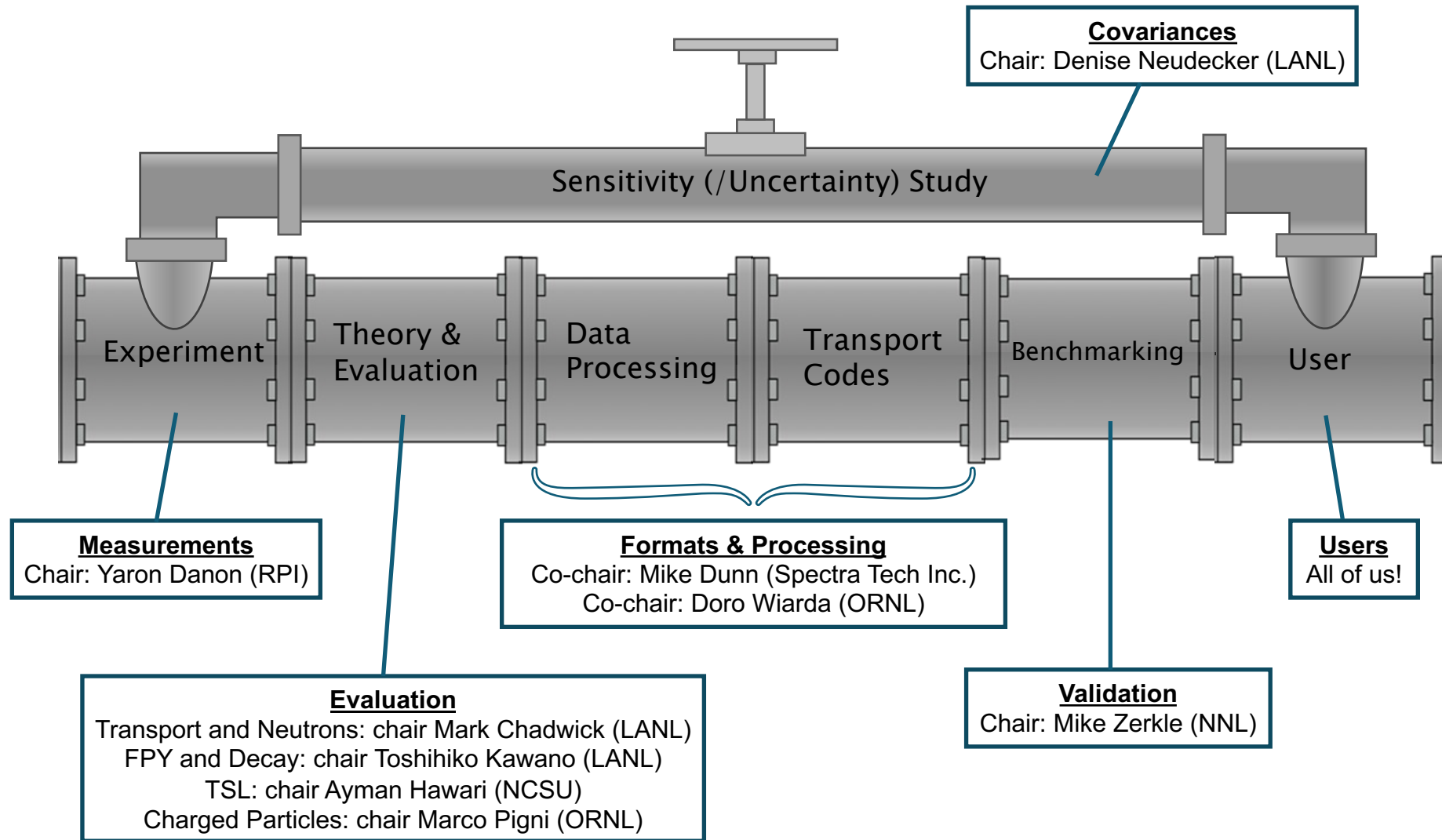
David Brown (BNL)

dbrown@bnl.gov

Library Manager:

Gustavo Nobre (BNL)

gnobre@bnl.gov



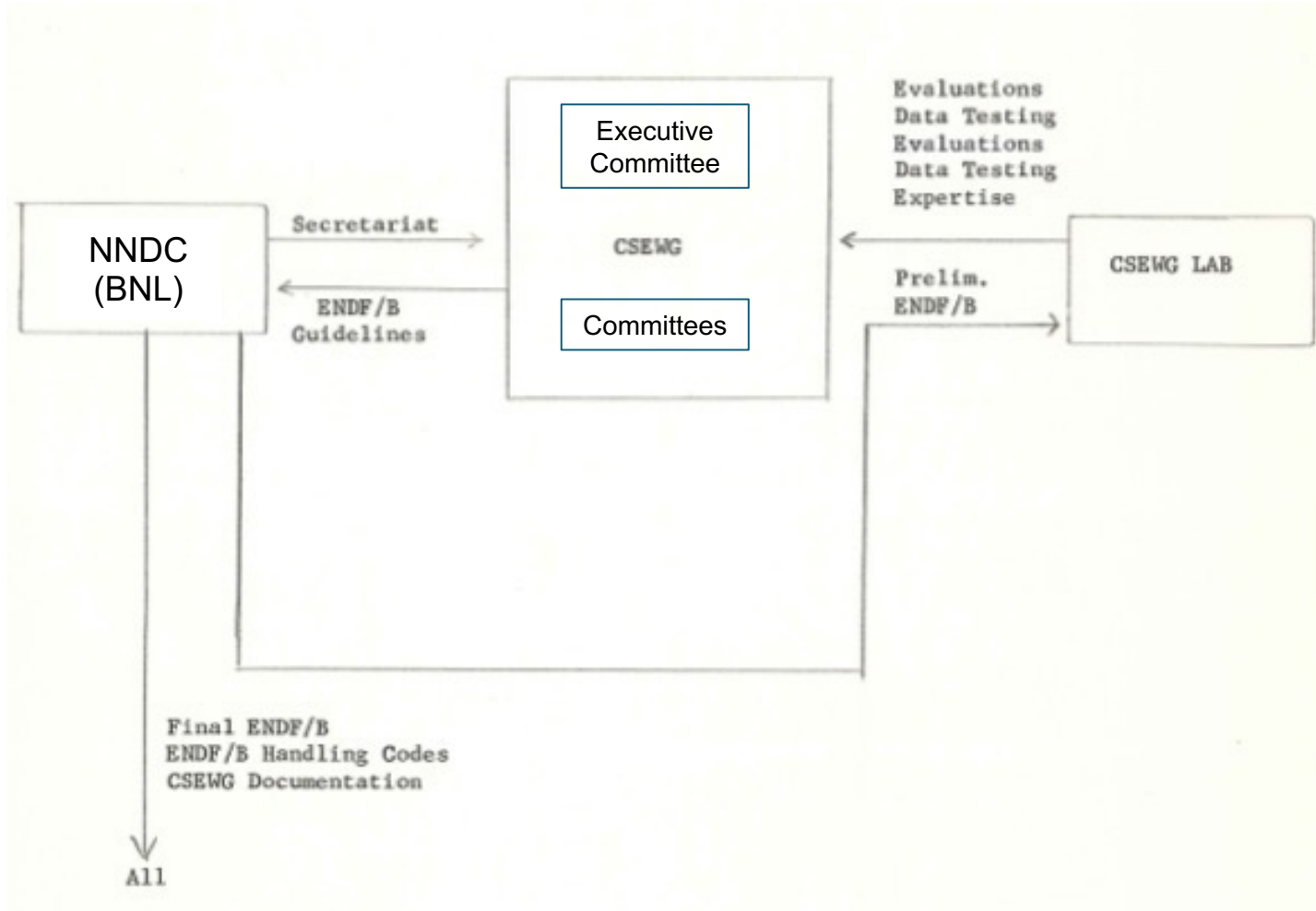
Roles & Responsibilities

- Latest version at <https://www.nndc.bnl.gov/csewg/docs/CSEWG-Roles-and-Responsibilities-v4.pdf>
- Key Roles:
 - Executive Committee: Cabal of SME's, lab reps & committee chairs
 - Chairs organize meetings & coordinate activities
 - Lab reps rally the troops
 - SME's are just smart
- Committees
- NNDC is secretariat
- CSEWG Labs (membership in CSEWG is *by lab*, not by people!)

The screenshot displays the CSEWG website. On the left is a navigation menu with sections: 'Future CSEWG Meetings' (listing 2024 Annual and Mini-meetings), 'Past CSEWG Meetings' (listing annual and mini-meetings from 2003 to 2023), and 'ENDF Releases' (listing versions from ENDF/B-VI.8 to ENDF/B-VIII.0). The main content area features the CSEWG logo and title, followed by the 'CSEWG Mission' section which describes the group's role in maintaining and validating the ENDF/B reference library. Below this is the 'About CSEWG' section, which states that CSEWG is a cooperative effort of national laboratories, industry, and universities. The 'CSEWG Organization' section is partially visible, with a yellow arrow pointing to the 'Roles & Responsibilities' link. A 'Screenshot' button is located at the bottom right of the page content.

<https://www.nndc.bnl.gov/csewg/>

CSEWG organization



Members (current best guess):
ANL, **AWE**, **BNL**, CEA Cadarache, CNL, JSI, KAERI, IRSN, **LANL**, LBNL/UCB, **LLNL**, IAEA, NIST, **NCSU**, **NNL**, **ORNL**, PNNL, **RPI**, SpectraTech, **Studsvik**, UTK, Westinghouse

Highlighted CSEWG labs have lab reps and are “core members”

While nominally a US collaboration, CSEWG has traditionally been open to outside participation

Executive Committee

- [David Brown](#), BNL, chair
- [Gustavo Nobre](#), BNL, *ENDF library manager*
- Committee Chairs:
 - Mark B. Chadwick, LANL
 - Yaron Danon, RPI
 - Michael Dunn, Spectra Tech Inc
 - Dorothea Wiarda, ORNL
 - Denise Neudecker, LANL
 - Michael Zerkle, NNL
 - Marco Pigni, ORNL
 - Ayman Hawari, NCSU
 - Toshihiko Kawano, LANL
- Lab Representatives:
 - AWE-NST
 - David Brown, BNL
 - Mark Chadwick, LANL
 - Yaron Danon, RPI
 - Ayman Hawari, NCSU
 - LLNL
 - Jason Thompson, NNL
 - Marco Pigni, ORNL
 - Charles Wemple, Studsvik
- At Large Members:
 - Roberto Capote, IAEA
 - Allan D. Carlson, NIST
 - Luiz Leal, ORNL
 - Ian Thompson, LLNL

Consists of the CSEWG Chair, committee chairs, and additional members selected by the CSEWG Chair with the approval of the Executive Committee to provide broader representation of the CSEWG member organizations.