

DE LA RECHERCHE À L'INDUSTRIE

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SG43: CODE INFRASTRUCTURE TO SUPPORT A GENERAL NUCLEAR DATABASE STRUCTURE (GNDS)

WPEC Meeting, 17-18/05/2017 | Fausto MALVAGI, Caleb MATTOON, Jeremy CONLIN

MALVAGI, MATTOON,
CONLIN

Five
Documents

Before

- **SG-38** (2013-2017): Beyond the ENDF Format
 - Detailed **Requirements** for a next generation **nuclear data structure** (Final version – June 28, 2016)
 - Requirements and specifications for a **Particle Database** (draft – 5 May 2015)
 - General-Purpose **Data Containers** for Science and Engineering (draft – 4 May 2015)
 - **Specifications** for the next generation nuclear data hierarchy (draft – May 2016)
 - **Specifications** for **documentation**.

Now

- **EG-GNDS** (Long Term) Expert Group on the Recommended **Definition** of a General Nuclear Database Structure (GNDS)
- **SG43** (2017-2020) Code **infrastructure** to support a modern general nuclear database (GNDS)

Goals

- To define an interface (API) for reading/writing GNDS
- To define checks to “validate” new evaluations

Stretch Goals

- To develop and share implementations of:
 - Reading/writing tools for evaluation manipulations
 - Visualization tools
 - Tools to generate evaluations from covariances
- To develop and share implementations of
 - Checking tools

Users

- Evaluators (and their codes)
- Processing codes (FUDGE, NJOY, AMPX, GALILEE, ...)

AGENDA OF MAY 16 MEETING

- 1:30--1:45 **Introduction** (Fausto Malvagi)
 - Brief overview---proposed scope of SG43
- 1:45--2:45 **Goals and Deliverables** (Caleb Mattoon)
 - Define an API for *reading* GND data
 - Create reference implementation of API with tests
 - Define API for *writing* GND data
 - Tools for format verification
 - Define standard list of physics tests.
- 2:45--3:30 **Guidelines for conducting SG43 Business** (Jeremy Conlin)
 - Introduction to the SG43 collaboration space
 - Procedure for dispute resolution
 - Teleconferences and work assignments
- 4:00--5:00 **Current status of access routines in processing codes**
 - AMPX (D. Wiarda)
 - GIDI (B. Beck)
 - NJOY (J. Conlin)
 - GALILEE (C. Jouanne)
- 5:00--5:30 **Status of Format Verification and Physics Checking Tools** (Caleb Mattoon)
- 5:30--6:00 **Final Discussion** (Jeremy Conlin)
Goals for the first year

Two Working Groups

(separate but not exclusive)

- API Definition/implementation (C. Mattoon)
 - Two styles: Object Oriented (OO) + Procedural (Flat)
- Checking (J. Conlin)

Working tools

- One meeting per year (WPEC week)
- Regular visio-conferences (every several weeks, alternating between the two WG)
- Collaborative space on GitHub
<https://github.com/GeneralizedNuclearData/SG43>

API Definition/Implementation

- Select simple cases (ReactionSuite and CrossSections)
- Write down specifications: OO + Flat
- Get first implementations done

Checking

- Identify and collect existing checks
- Merge and prioritize them
- Get first implementations with available defined/implemented API

Meet again next year

- Assess status
- Advance

THANK YOU FOR YOUR ATTENTION