

# Introduction and objectives for GNDS-2.0

What's our plan?

**GNDIS Implementation Status Questionnaire:**  
**<https://forms.gle/fPb21mFJbupK56wr7>**

**GNDIS Taskforce Questionnaire:**  
**<https://forms.gle/2QWXW8zYevKLjtJe7>**

# GND-2.0 Goals

- **Satisfy SG-38 goals**

- `<map>` format

- `<documentation>` format (handled in May)

- Major TNSL rewrite (handled in May)

- **Ensure “forwards compatibility” with ENDF-6**

- **Respond to user needs**

- TNSL Covariance

## Detailed requirements for a next generation nuclear data structure

OECD/NEA/WPEC SubGroup 38\*

(Dated: June 28, 2016)

This document attempts to compile the requirements for the top-levels of a hierarchical arrangement of nuclear data such as found in the ENDF format. This set of requirements will be used to guide the development of a new data structure to replace the legacy ENDF format.

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\* Edited by D.A. Brown (dbrown@bnl.gov)

# Overview of Bugfixes

Approved bug fixes

# Bugs we fixed



- **Fix issues with Kalbach-Mann specification**
  - <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/46>
  - [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/125](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/125)
- **Missing gridded1d child nodes**
  - <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/45>
  - [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/120](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/120)
- **Remove legacy attributes from product node**
  - <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/44>
  - [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/117](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/117)
- **typo in regions1d**
  - <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/43>
  - [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/122](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/122)
- **Confusing use of bodyText in array specifications**
  - <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/35>
  - [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/116](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/116)
- **Fix tsl merge**
  - [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/121](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/121)
- **Caleb's catchall for fixes.**
  - [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/113](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/113)
- **Bug fixes for <documentation> node**
  - <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/40>
  - [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/119](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/119)
- **Fix date and time formats**
  - <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/39>
- **Poor wording for [optional] things**
  - <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/38>
  - [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/123](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/123)
- **Problems with <atomic> node**
  - <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/36>
  - [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/124](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/124)

# Bugs we fixed



- **Fix issues with Kalbach-Mann specification**

## Corrections to May WPEC Action Items

- <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/44>
- [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/117](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/117)
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# Bugs we still need to fix



- Improve discussion of interpolationQualifier
  - <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/42>

# Overview of new formats

Approved or ready to be approved formats for GNDS-2.0  
(not including ones approved in May)

# GND-2.0: Meeting the requirements

- **Remove LLNL-specific distribution forms**

- <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/47>
- [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/127](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/127)
- Reviewers: ?

- **Proposal/add appendix**

- [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/115](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/115)
- Reviewers: ?

- **Add style for URR probability tables**

- <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/34>
- [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/112](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/112)
- Reviewers: ?

- **Move the 'fissionGenre' attribute from a reaction to an outputChannel**

- [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/114](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/114)

- Reviewers: ?

- **primaryGamma nodes should support listing the final state**

- <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/31>
- [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/110](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/110)
- Reviewers: ?

- **Map file format**

- <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/33>
- [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/126](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/126)
- Reviewers: ?

- **Covariance format for TNSL data**

- <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/32>
- [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/129](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/129)
- Reviewers: ?

- **Resonance format choice (see next talk)**

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- Reviewers: ?

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- Reviewers: ?

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## May WPEC Action Items

[merge\\_requests/110](#)

- Reviewers: ?

- **Map file format**

- <https://git.oecd-nea.org/science/wpec/gnds/formats/issues/33>
- [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/126](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/126)
- Reviewers: ?

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- [https://git.oecd-nea.org/science/wpec/gnds/formats/merge\\_requests/129](https://git.oecd-nea.org/science/wpec/gnds/formats/merge_requests/129)
- Reviewers: ?

- **Resonance format choice (see next talk)**

# proposal/fissionGenre

move the 'fissionGenre' attribute from a reaction to an outputChannel

- **TO DO** item from **May WPEC** meeting
- move the fissionGenre attribute from a <reaction> to an <outputChannel> and that's it

Approved and merged post  
May WPEC

# proposal/URR\_style

## Add style for URR probability tables

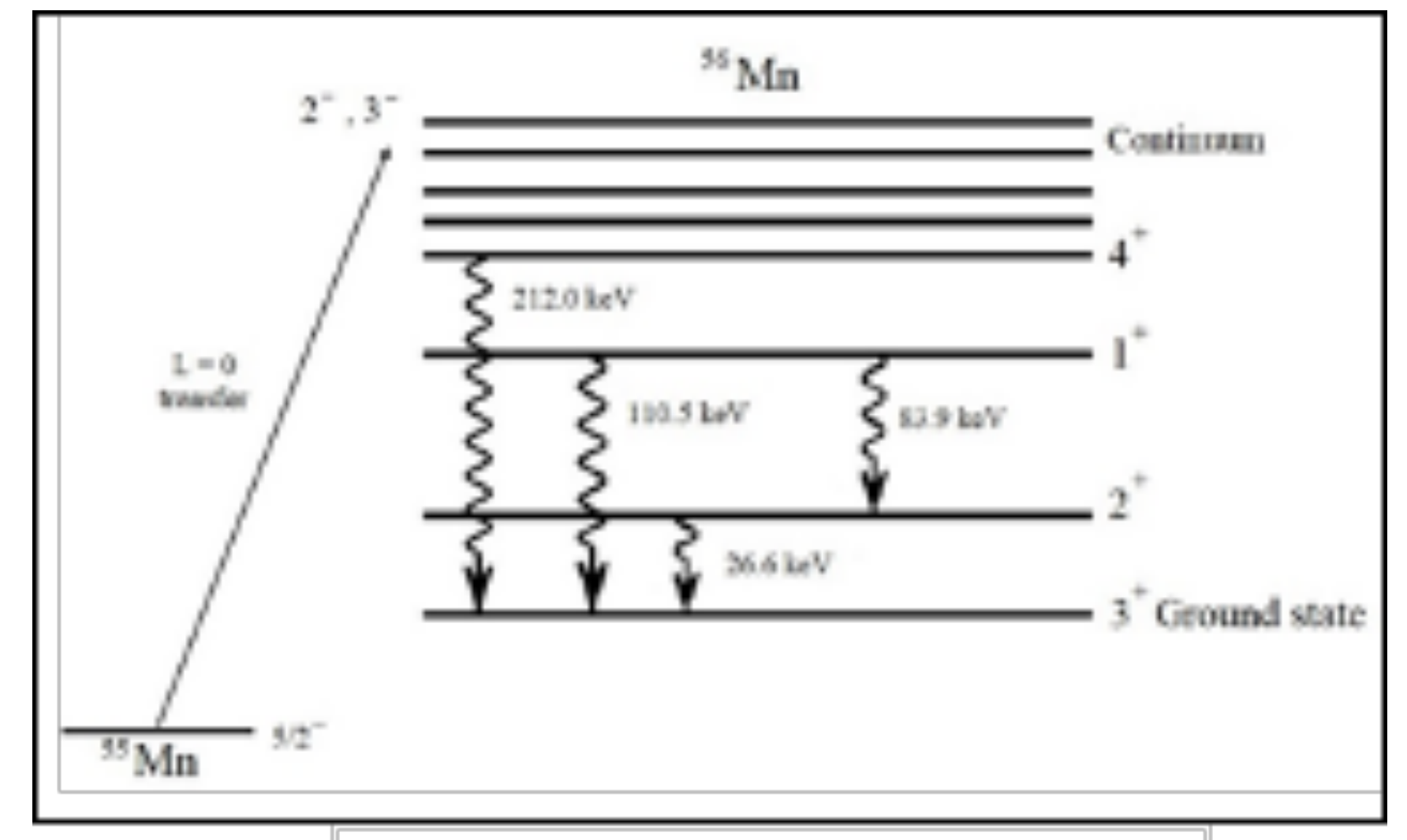
- **TO DO** item from **May WPEC** meeting
- Add URR\_probabilityTables as allowed <style>
- This was an easy one that we missed in GNDS-1.9

Approved, ready to merge

# proposal/primaryGamma

proposal/primaryGamma nodes should support listing the final state

- **TO DO** item from May WPEC meeting
- add finalState attribute
- Following primary gamma emission, can now simulate entire cascade that is in coincidence



Approved, ready to merge

# proposal/add-appendix

**Actually 2 appendices...**

- **TO DO item from May WPEC meeting**
- **“Connection of GNDS types to ENDF-6 data types”**
  - GNDS vs. ENDF-6 data containers
  - GNDS vs. ENDF-6 MF/MT’s
- **“GNDS Versions”**
  - Follow on from discussion in May regarding version numbering
  - Semantic versioning + in-house version suggestions
  - GNDS version history

**Approved,  
ready to  
merge**

# 33-map-file-format

## The map file format

- **SG-38 Requirement**
- Bret discussed yesterday
- Merge request discussion in progress, wrapping up soon

# 47-remove-llnl-specific-distribution-forms

## Remove LLNL-specific distribution forms

- **New proposal, cleans up format a little**
- Submitted by Caleb Mattoon 2 weeks ago
- No reviewers assigned yet (volunteers?)

# proposal/MultiDimCovariance

## Covariance format for TNSL data

- **New proposal, request from SG-42 & CSEWG**
- Submitted by Doro Wiarda last week
- No reviewers assigned yet (volunteers?)

**Pending resolution of open format proposals, should we declare GNDS-2.0?**

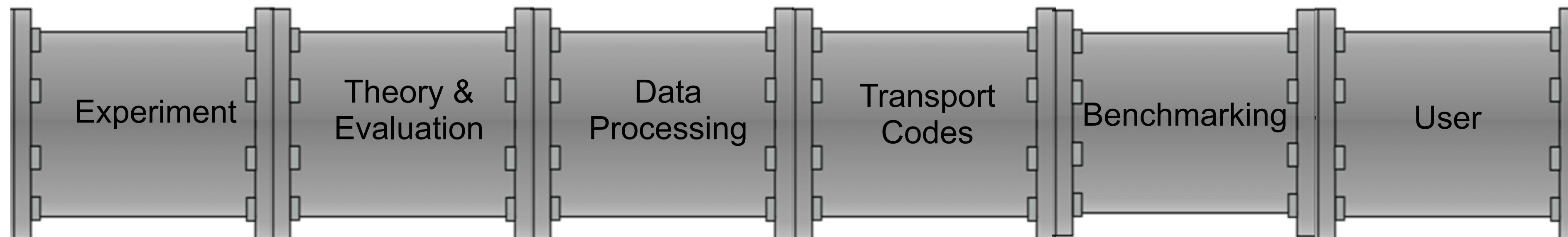
# API code integration

What is our plan for implementing new formats in our codes?

# User Guide Discussion

# Who are the target audiences?

- Evaluators who have to populate the evaluations
- Data processors who have to translate from what evaluators can make to what codes can use
- Transport code users who have to understand what their code is running with
- \*Computers\* especially the ones that will be used for ML applications throughout pipeline
  - OK, the computers don't need the Guide, but the developers do!
- Others?



# Source material

- xml files
- FUDGE
  - Example codes
  - tutorials
- ENDF-6 manual
- MCNP manual
- NJOY manual

**I recommend setting up  
task forces to deal with  
this topic**