

# SCALE Utilities for Nuclear Data Interrogation, Comparison, and Visualization

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# Visualization of data with Fulcrum

- Plot continuous-energy (CE) cross sections over multi-group (MG) cross sections MG
  - (H in H<sub>2</sub>O, <sup>235</sup>U, and anything else participants ask for)
  - Look at table of MG cross sections
- Plot MG scattering matrices
- Covariance library (show diagonal) and pretty plots (correlation)
- Compare ENDF/B releases (cross sections and covariances)

# Printing, filtering, selecting data with AMPX utilities

- Resource: AMPX Manual, <https://www.ornl.gov/scale/scale-manual>
- Input generation: Exsite GUI

## 1. Library comparison:

- AmpxDiffer: command line tool for MG library comparisons
- CovComp: module to compare covariance libraries

## 2. Library interrogation:

- Rade: Check MG library
- PaleAle: Print data from MG library (XS, Scattering Matrices, Bondarenko Factors, ...)

## 3. Library filtering:

- Filter: Filter MG library for specific data types (neutron, gamma, Bondarenko, etc.)
- Ajax: Merge, select, reorder specific nuclides on MG library

## 4. Standard composition:

- Compoz: Modify and print standard composition library

# Data interrogation with OBIWAN

- OBIWAN (**O**RIGEN **B**inary **I**nterrogation **W**ithout **A** **S**CALE **i**Nput )
- Interrogation of ORIGEN libraries
  - F71: ORIGEN concentration library
  - F33: ORIGEN cross section library (1-group cross sections, transition matrix)
- Libraries (F33 viewing)
  - Viewing
  - Patching
  - Diff-ing
  - Converting
- State sets (F71 viewing)
  - Viewing
  - Diff-ing

# Conclusion

- Questions?
- Anything else you want to see?