

# ADVANCE system update

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# Where to find the link to ADVANCE

The image shows a screenshot of the National Nuclear Data Center (NNDC) website. A red arrow points to the URL [www.nndc.bnl.gov](http://www.nndc.bnl.gov) in the browser's address bar. Another red arrow points to the 'Reactions' tab in the navigation menu. A third red arrow points to the 'ADVANCE ENDF continuous integration system' link in the 'Reactions' section. A fourth red arrow points to the 'Reactions' tab again.

[www.nndc.bnl.gov](http://www.nndc.bnl.gov)

Reactions tab

The link

Reactions	Bibliography	Networks & Links	Publications	Meetings
<p>Experimental data</p> <ul style="list-style-type: none"><li>EXFOR Experimental nuclear reaction data</li><li>The EXFOR project</li><li>EXFOR Basics: Short guide</li></ul> <p>Codes</p> <ul style="list-style-type: none"><li>Checking &amp; utility codes</li><li>Reaction codes</li><li>EMPIRE Nuclear Reaction Model Code</li></ul>	<p>Evaluated ENDF data</p> <ul style="list-style-type: none"><li>ENDF/B-VII.1 Current ENDF release</li><li>ENDF/B-VII.0 In-development ENDF library</li><li>The ENDF project</li><li>Sigma ENDF Retrieval &amp; Plotting</li><li>Current ENDF-6 Format Manual</li><li>In-development ENDF-6 Format Manual</li><li>Introduction to ENDF Formats</li><li>ADVANCE ENDF continuous integration system</li></ul>	<p>Other evaluated data</p> <ul style="list-style-type: none"><li>Atlas of Neutron Resonances Parameters &amp; thermal values</li><li>Atomic Mass Evaluation</li><li>IRDF International Reactor Dosimetry File</li><li>Monitor Reactions IAEA recommended charged-particle cross sections</li><li>RIPL-3 Reference Input Parameter Library</li></ul>	<p>Tools</p> <ul style="list-style-type: none"><li>CapGam Thermal neutron capture <math>\gamma</math> rays</li><li>Gamma Ray Atlas Following Inelastic Scattering of Fast Neutrons Downloadable software platform</li><li>EXFOR/ENDF Plotting</li><li>NucRates MACS and astrophysical reaction rates</li><li>MyENDF integrated web tool for evaluators</li><li>Q-value Calculator</li><li>USNDPICSEWG GForge Collaboration server</li></ul>	



# To find out detailed lists of problems, go to ADVANCE, find your library's release notes

The ADVANCE Continuous Integration System



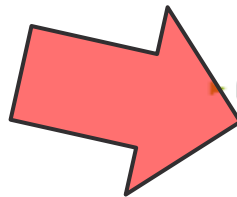
## Neutrons Sublibrary

Latest Updates

### ENDF/B Development Library

- ▶ **General Information:**
  - ▶ ENDF sublib designator: 10
- ▶ **Revision Number:** 1063:1064M
- ▶ **Last Modified Revision:** 741:1064M
- ▶ **Build Status:**
  - ▶ Build status: [ERROR](#)
  - ▶ Build time: 2017-02-09 19:00:04.290285
- ▶ **Downloads:**
  - ▶ Release Notes: [neutrons-releaseNotes.pdf](#)
  - ▶ Listfile: [neutrons.list](#)
  - ▶ Release Tarball: [neutrons.tar.gz](#)
  - ▶ ACE File Tarball: [neutrons-aceFiles.tar.gz](#)
- ▶ **Forge Links:**
  - ▶ Browse SVN
  - ▶ Browse sublibrary tracker

The link

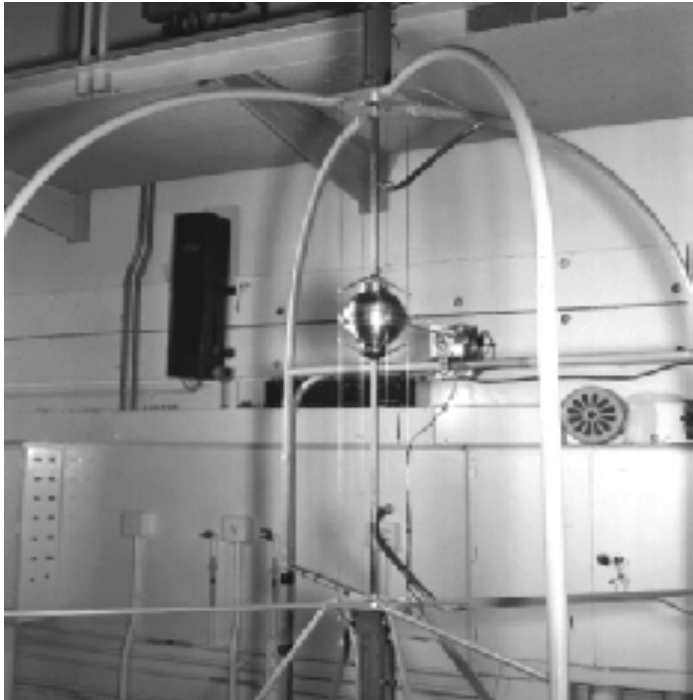


# Remaining big problems that are potentially fixable before release

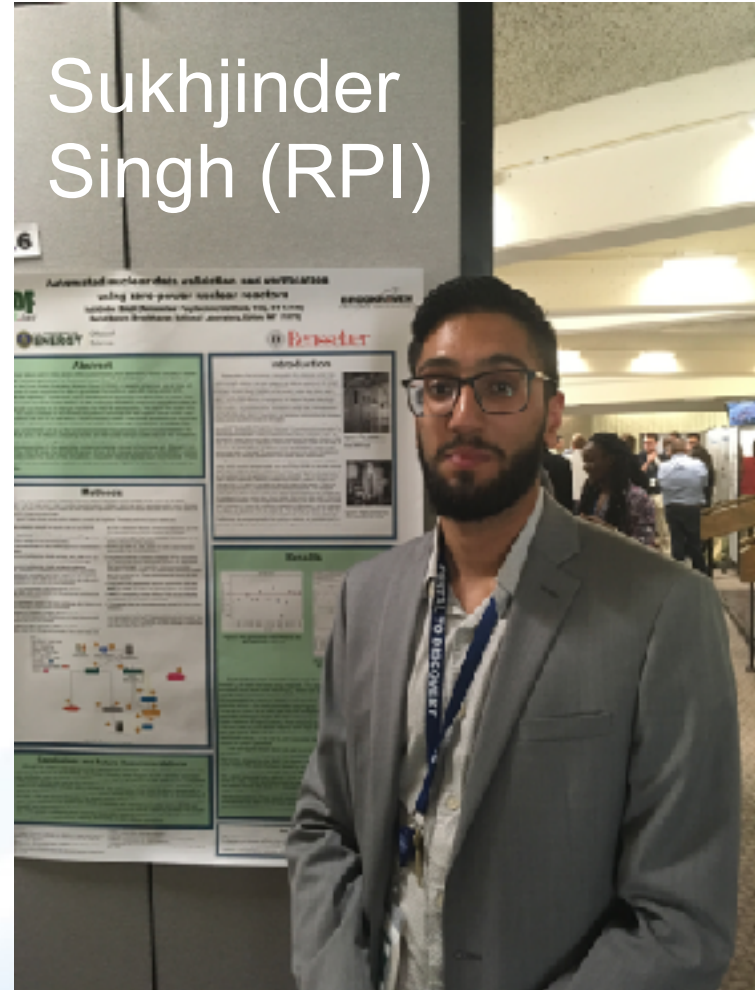
- **ENDF header needs update for ENDF/B-VIII:**
  - Mod numbers
  - Dates
  - Directory
  - (most fixed already)
- **Angular distribution is negative:** 51 isotopes
- **Main energy grid is not monotonic:** n-042\_Mo\_096.endf, n-042\_Mo\_097.endf, n-092\_U\_241.endf
- **The elastic cross section is negative:** n-058\_Ce\_136.endf, n-062\_Sm\_150.endf
- **Outgoing ZA is wrong:** 17 isotopes
- **The cross section and an outgoing distribution don't span the same energy region:** n-004\_Be\_009.endf, n-094\_Pu\_238.endf, n-094\_Pu\_240.endf
- **MF32 resonance parameters don't match MF2 parameters:** n-020\_Ca\_047.endf, n-028\_Ni\_063.endf, n-078\_Pt\_192.endf
- **Primary gamma energy at threshold should be  $\leq$  available energy (depending on which discrete level it ends up in):** n-006\_C\_012.endf
- **Many others that are not so fixable, given the time available**



# SULI student progress toward adding automated benchmarking



**JEZEBEL—A bare sphere of Plutonium-239 Metal (PMF001)**



**Sukhjinder Singh (RPI)**

- Simplified build-out — can deploy benchmarking system to new machine quickly
- COG “wrapped” by Python script
  - Problem setup and teardown
  - Input file generation
  - Output file parsing
- Automatic COG library setup
- Have database of tests, keyed off benchmark composition
- Interacts with BNL batch queue system
- Builds HTML report upon completion (see next page)



# Sample run report for $^{56}\text{Fe}$

