

# NJOY2016

- Many updates made to support ENDF/B-VIII.0  
See [Wim Haeck et al. NJOY2016 updates for ENDF/B-VIII.0. Tech. rep. LA-UR-18-22676. 2018](#)
- Used NJOY2016.35 to process ENDF/B-VIII.0  
See [Jeremy Lloyd Conlin et al. “Release and Distribution of ENDF/B-VIII.0-Based ACE Files”. In: \*Transactions of the American Nuclear Society\*. 2018](#)
- Formally deprecated NJOY2016 for NJOY21 in August 2018
  - Issues for NJOY2016 posted on GitHub are still being regularly addressed

# NJOY21

- **NJOY21 is production version of NJOY**
  - All new development will be done in NJOY21
  - Users are encouraged to use NJOY21 for their production use

## Website

<https://www.njoy21.io>

## Source Code

<https://github.com/njoy>

# Continuous Integration

## Continuous Integration

<http://jenkins.njoy21.io:8080>

- Jenkins server on AWS
- Adding components as they are being developed
- Tested on every git push and every Pull Request
- Multiple compilers/platforms
- Tested in parallel

All jobs currently configured. [edit description](#)

S	W	Name ↓	Last Success	Last Failure	Last Duration	Fav
		<a href="#">ACEik</a>	14 days - <a href="#">#170</a>	17 hr - <a href="#">#181</a>	4 min 31 sec	
		<a href="#">ACEik-Pull-Requests</a>	4 mo 11 days - <a href="#">#50</a>	1 mo 1 day - <a href="#">#75</a>	10 min	
		<a href="#">constants</a>	2 mo 22 days - <a href="#">#47</a>	N/A	1 min 21 sec	
		<a href="#">constants-PullRequest</a>	2 mo 22 days - <a href="#">#20</a>	N/A	52 sec	
		<a href="#">ENDFik</a>	5 days 12 hr - <a href="#">#43</a>	1 mo 4 days - <a href="#">#42</a>	16 min	
		<a href="#">ENDFik-Pull-Requests</a>	5 days 12 hr - <a href="#">#39</a>	1 mo 4 days - <a href="#">#37</a>	3 min 13 sec	
		<a href="#">lioservice</a>	4 mo 21 days - <a href="#">#7</a>	N/A	5 min 9 sec	
		<a href="#">NJOY2016</a>	19 days - <a href="#">#97</a>	6 mo 3 days - <a href="#">#41</a>	20 min	
		<a href="#">NJOY2016-Pull-Requests</a>	19 days - <a href="#">#76</a>	3 mo 23 days - <a href="#">#67</a>	23 min	
		<a href="#">NJOY2016-Windows</a>	19 days - <a href="#">#77</a>	4 mo 5 days - <a href="#">#60</a>	1 hr 6 min	
		<a href="#">NJOY2016-Windows-Pull-Requests</a>	19 days - <a href="#">#55</a>	3 mo 23 days - <a href="#">#46</a>	1 hr 14 min	
		<a href="#">NJOY21</a>	2 mo 21 days - <a href="#">#160</a>	4 mo 5 days - <a href="#">#152</a>	35 min	
		<a href="#">NJOY21-AddressSanitizer</a>	N/A	2 mo 21 days - <a href="#">#6</a>	23 min	
		<a href="#">NJOY21-coverage</a>	N/A	2 mo 21 days - <a href="#">#4</a>	14 min	
		<a href="#">NJOY21-IntegerSanitizer</a>	2 mo 21 days - <a href="#">#6</a>	4 mo 4 days - <a href="#">#3</a>	26 min	
		<a href="#">NJOY21-Pull-Requests</a>	2 mo 21 days - <a href="#">#32</a>	4 mo 5 days - <a href="#">#28</a>	39 min	
		<a href="#">NJOY21-Windows</a>	N/A	N/A	N/A	
		<a href="#">Resonance_reconstruction</a>	N/A	4 mo 18 days - <a href="#">#6</a>	1 hr 0 min	

Icon: [S](#) [M](#) [L](#)

Legend RSS for all RSS for failures RSS for just latest builds

# NJOY21 Components

- NJOY21 capabilities are developed in “components”
- Components are developed independently and designed to be incorporated as needed in a variety of codes (i.e., NJOY21)

**lipservice** Verification of Legacy NJOY input parameters

**ENDFtk** Toolkit for working with ENDF-formatted data

**ACEtk** Toolkit for working with ACE-formatted data

**constants** Collection of mathematical and physics constants

**utility** Collection of general-purpose routines/data-types

**DimensionalAnalysis** Compile-time dimensional analysis and unit awareness

**ResonanceReconstruction** Resonance formalisms and reconstruction capabilities

# Future Components

- Python interface
- Toolkit for working with GNDS-formatted data
- Toolkit for working with NDI-formatted data
- Calculation of KERMA and radiation damage cross sections
- Processing of covariance data
- Generation of multi-group energy data from point-wise data
- Data visualization
- etc.

**Each of these (and more) will be developed as time/resources allow.**

## Short-term Goals

By the end of 2021, NJOY21 will have modernized all components necessary to enable the processing of the neutron sublibrary of ENDF/B-VIII.0 to the ACE format.

1. RECONR
2. BROADR
3. ACER
4. HEATR
5. MODER
6. PURR
7. GASPR

NJOY21 will be able to process the neutron sublibrary into the multi-group NDI format for the ENDF/B release that comes after ENDF/B-VIII.0.

1. GROUPT
2. NDIR
3. UNRESR

These are *very* ambitious goals with current resources

# Conclusion

- Many updates were made to NJOY2016 to support ENDF/B-VIII.0
- NJOY21 is now production version of NJOY
- NJOY21 is made of many components which are independently developed and integrated into NJOY21
- We have ambitious goals for NJOY21 and are working towards them as fast as resources allow