



Nuclear Data Activities Supporting MCNP

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Nuclear Data for MCNP

- MCNP6.2 released in 2018
- Nuclear Data accompanied on 2 DVDs
 - ENDF/B-VII.1-based data (endf71x—new with MCNP6.2)
 - ENDF/B-VII.1-based thermal scattering data (new with MCNP6.2)

ENDF/B-VIII.0-Based ACE Files Available

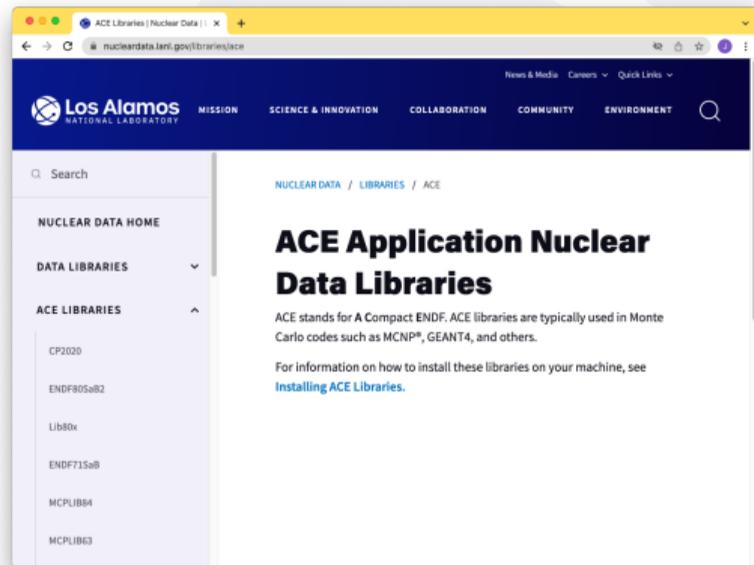
- ENDF/B-VIII.0 released in February 2018
- <https://nuclldata.lanl.gov>
 - ENDF/B-VIII.0-based ACE files release in June 2018 (**7 GiB**)
 - ENDF/B-VIII.0-based thermal scattering ACE files released in July 2018 and October 2020 (**2.5 GiB**)
 - Incident charged-particle ACE files released April 2021
 - Instructions for modifying xsdir file

ENDF/B-VIII.0-Based ACE Files Available

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 - Instructions for modifying xsdir file
- So much unfulfilled potential
- Limited number of libraries
- Slow download speeds
- Looks rather plain

Updated Website

- All of our Monte Carlo data is available
- Hosted on AWS servers with fast downloads
- Live in October 2021



DEMO

Data Downloader

- Utility written in Python with no external dependencies
- Provides automated access to <https://nucleardata.lanl.gov>
- Single line commands to download all libraries, install them, and create XSDIRs
- Easily add libraries in the future
- Automatically performs consistency checks on files
- Has offline mode - once enabled, tool will not attempt to access network

Tool created by Colin Josey (XCP-3, LANL),

- Distributed with MCNP6.3
- Eventually made Open Source

What data is available to MCNP?

- Appendix G of MCNP5 manual
- “Listing of Available ACE Data Tables” (LA-UR-17-20709)
 - Static document
 - Didn't truly represent what was on the user's local machine
- Need something more flexible and specific to the user

Data Listing Tool

- Dynamic Python tool
 - [JupyterLab](#)
- Examines data on local machine
 - Looks through XSDIR file
 - No internet connection required (after dependencies are downloaded)
- Open Source project <https://github.com/NuclearData/DataListing>
 - Interested partners may contribute via Pull Requests
 - Please begin a conversation with developers before spending a lot of time doing something new

<https://github.com/NuclearData/DataListing/discussions>

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Conclusion

- Nuclear Data Team at LANL is working to improve nuclear data availability
- Updated/modernized/improved website
<https://nucleardata.lanl.gov>
- New, dynamic tool for examining what ACE data is on your machine
<https://github.com/NuclearData/DataListing>