

LLNL Report for USNDP

Nuclear Data Week, November 2018

Ian Thompson

 Lawrence Livermore
National Laboratory

LLNL-PRES-760799

This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under contract DE-AC52-07NA27344. Lawrence Livermore National Security, LLC



LLNL contributions to USNDP

- 0.25 FTE for \$134k
- Coordinate LLNL nuclear data efforts with CSEWG
- Testing new ENDF/B-VIII.0 evaluations
 - Criticality testing: Marie-Anne Descalles
- Make, Verify, Validate R-matrix evaluations
 - With IAEA, R-matrix workshops, and GND-interchange codes.
- Leverage LLNL programmatic funding to provide evaluations for inclusion in ENDF
 - Ian Thompson, Eric Jurgenson

FY18 Metrics Table

NSR Compilations	0
EXFOR Compilations	0
XUNDL Compilations	0
ENSDF Evaluations submitted	0
ENDF Evaluations	(see below)
Disseminations (in thousands)	5 (approx)
Articles	2
Reports	3
Invited Talks	5

ENDF evaluations in FY18: 8

ENDF evaluations in FY19: 12 candidates submitted

FY18 FTE Table

PhD Permanent	0.20
PhD Temporary	0
Tech. & Admin.	0.05
Grad. Student	0
Total	0.25

\$134k FY19 funding

\$27k FY17 carry over

\$149k FY18 total costs

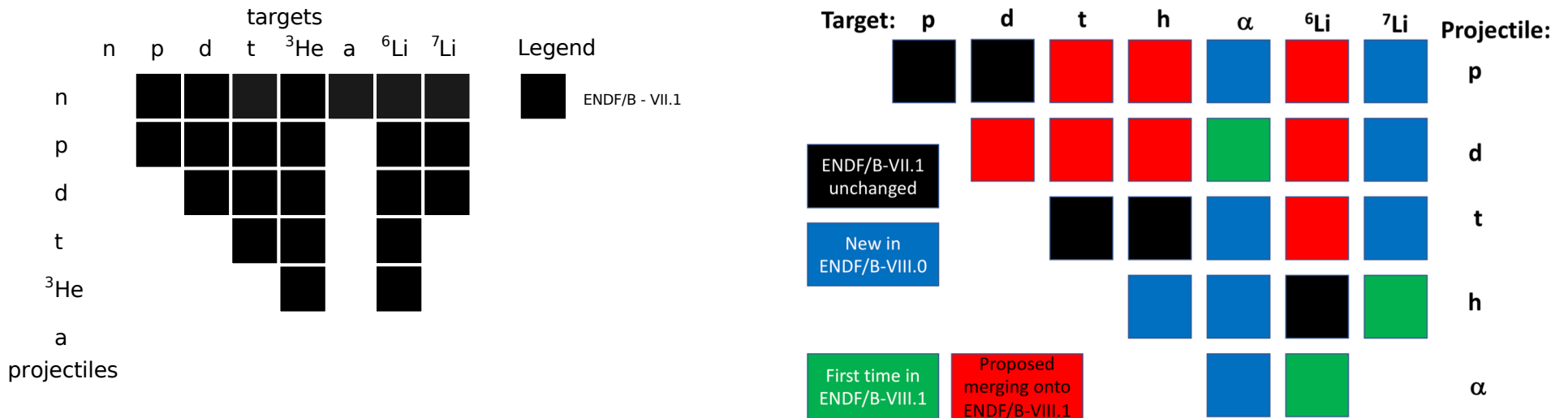
\$12k rollover into FY19

Activity with Current Funding

- National Coordination
 - Coordinate Nuclear Data Efforts with USNDP/CSEWG
 - Attend USNDP/CSEWG meetings
 - Use R-matrix GND tools to translate, verify and improve proposed evaluations
 - R-matrix methods: encourage use of Brune basis
- International Coordination
 - Attend IAEA consultants meetings on R-matrix methods
 - Attend INDEN evaluators meeting on light-ion neutron evaluations
- Provide LLNL evaluations for ENDF
 - USNDP funds the translation over to ENDF
 - Delivered LLNL charged-particle evaluations for ENDF/B-VIII release

ENDF Evaluations

- Charge Particle Evaluations by LLNL
 - Detailed overview in CSEWG
 - ~24 evaluations in use at LLNL could be considered for ENDF
 - Caleb Mattoon coded most conversions from ENDL to GNDS to ENDF
 - Using LCT=4 option in ENDF6 format to use lab frame for breakup products.



Used in ENDF/B-VIII.0: p+a, t+a, h+a, a+a, p+⁷Li, d+⁷Li, t+⁷Li, h+h