



# PNNL Budget Summary and Highlights

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Travis Zipperer



PNNL is operated by Battelle for the U.S. Department of Energy

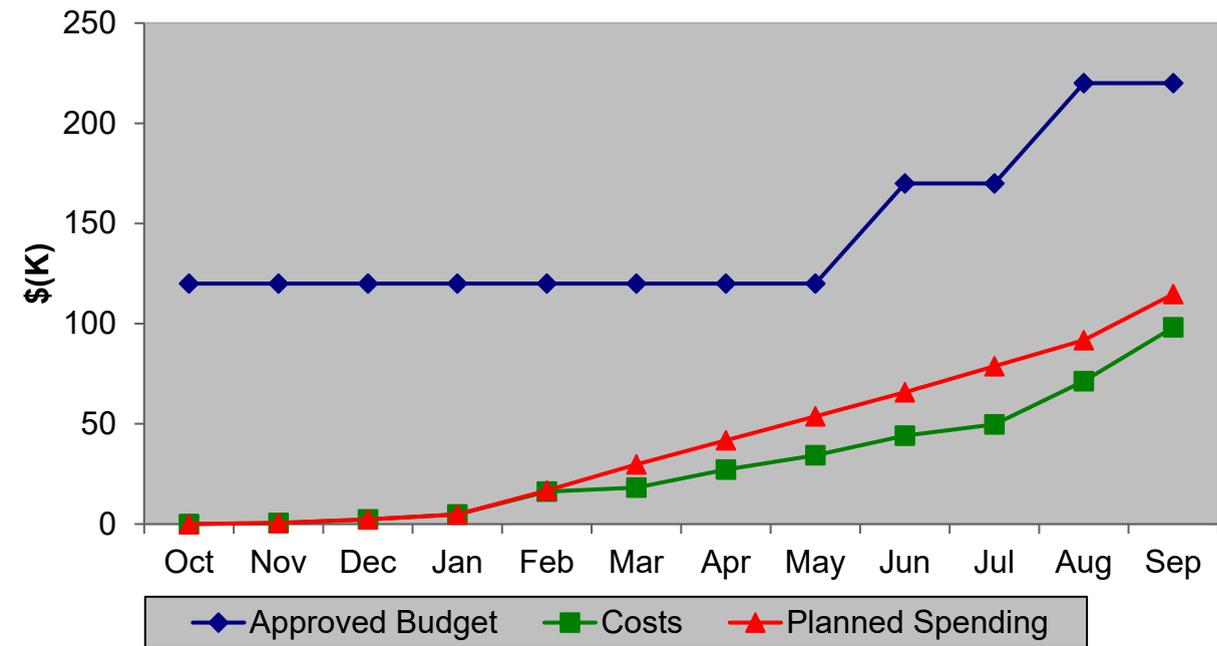
PNNL-SA-182105



# Budget and Spending Overview

- Final FY 2022 Budget: \$98K
- FY 2022 Carryover: \$122K

**FY22 Spending Overview**

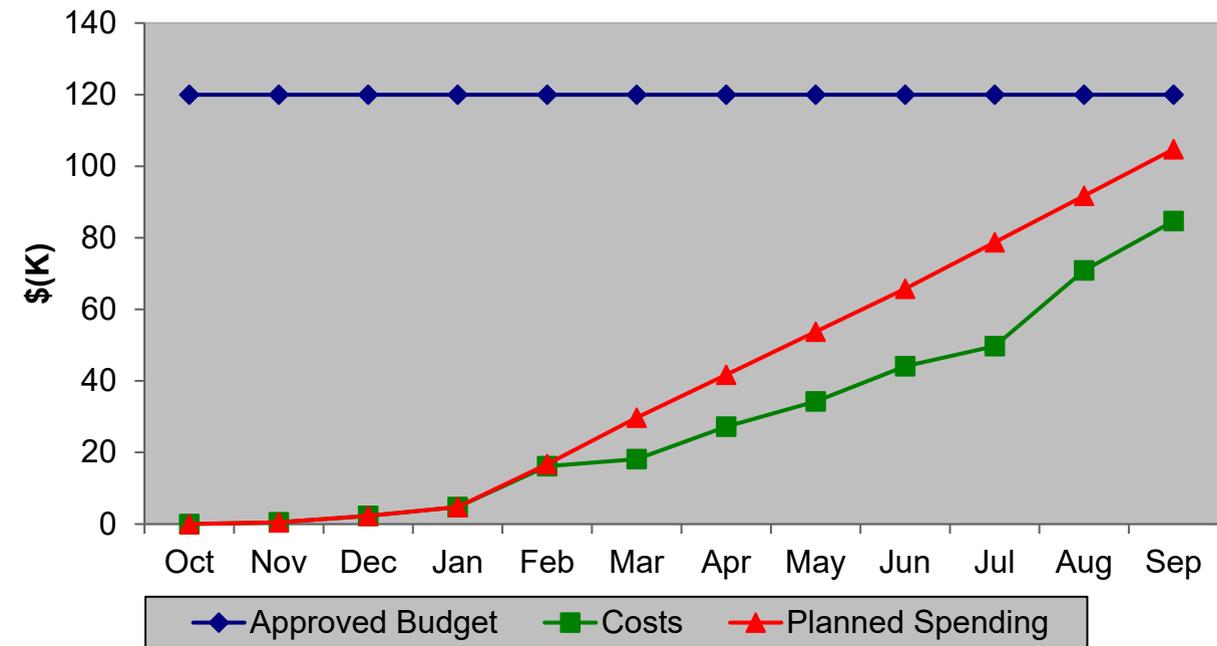


Q1 Actual Spending	\$2K
Q2 Actual Spending	\$16K
Q3 Actual Spending	\$26K
Q4 Actual Spending	\$54K

# Analytical Methods

- Final FY 2022 Budget: \$85K
- FY 2022 Carryover: \$35K

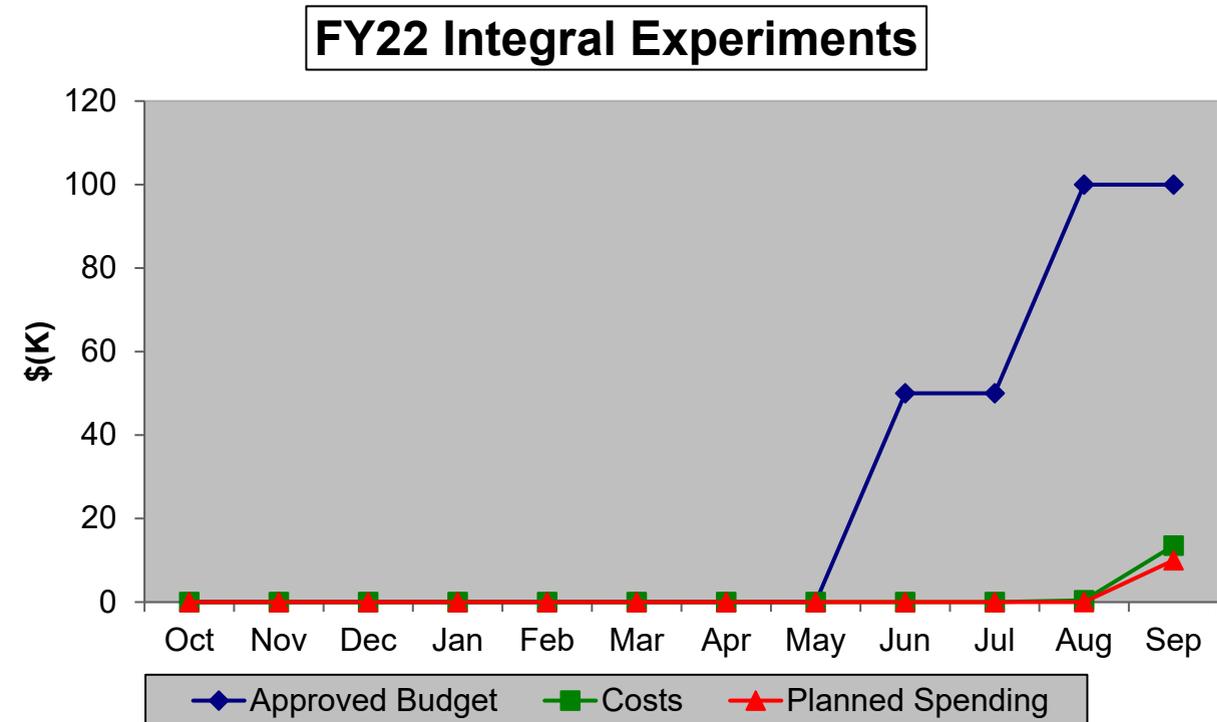
**FY22 Analytical Methods**



Q1 Actual Spending	\$2K
Q2 Actual Spending	\$16K
Q3 Actual Spending	\$26K
Q4 Actual Spending	\$41K

# Integral Experiments

- Final FY 2022 Budget: \$14K
- FY 2022 Carryover: \$86K



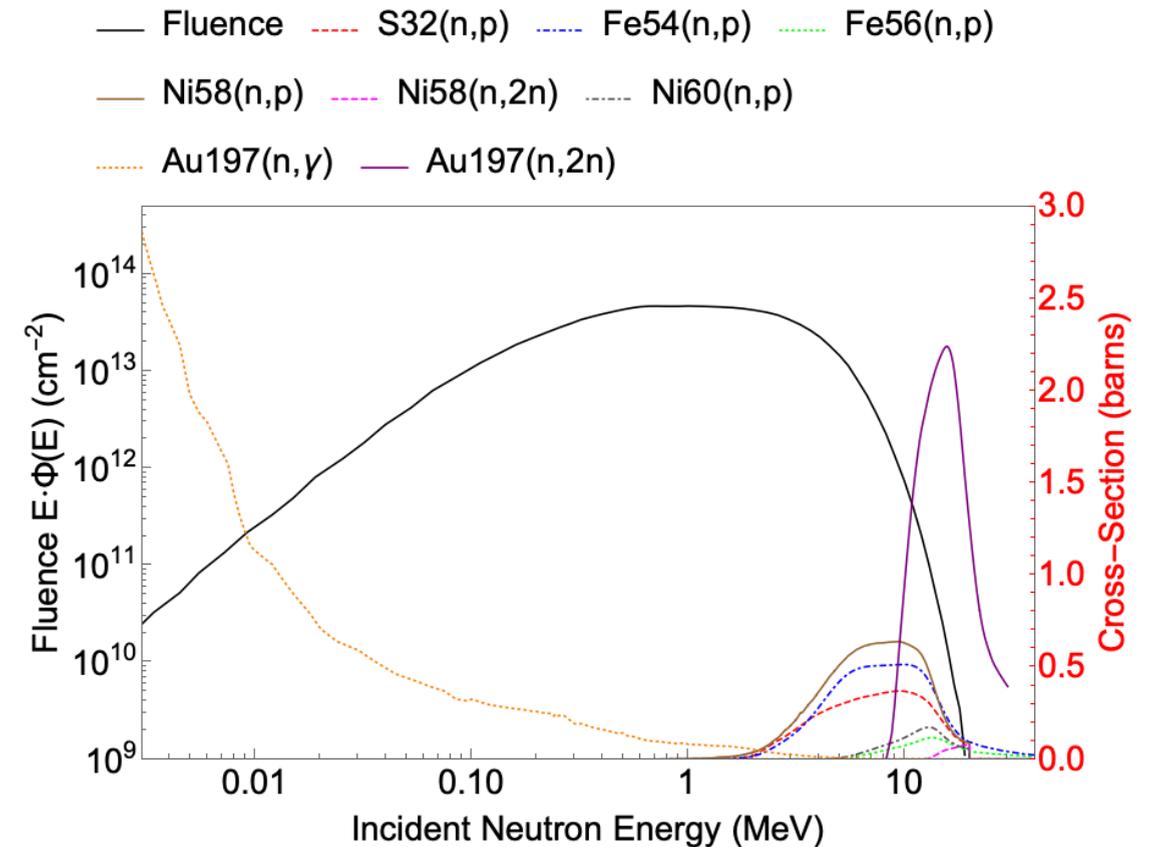
Q1 Actual Spending	\$0K
Q2 Actual Spending	\$0K
Q3 Actual Spending	\$0K
Q4 Actual Spending	\$14K

# Highlights

- AM
  - Collaborations with ORNL to perform sensitivity analysis for nuclide mixes
  - Developed methodology for Sum-of-Fractions
- IE
  - IER 557 Godiva IV Reproducibility/Characterization
  - Bruce Pierson served as co-chair in Nuclear Data Session at the 2022 NCERC Futures Workshop

# Highlights IE

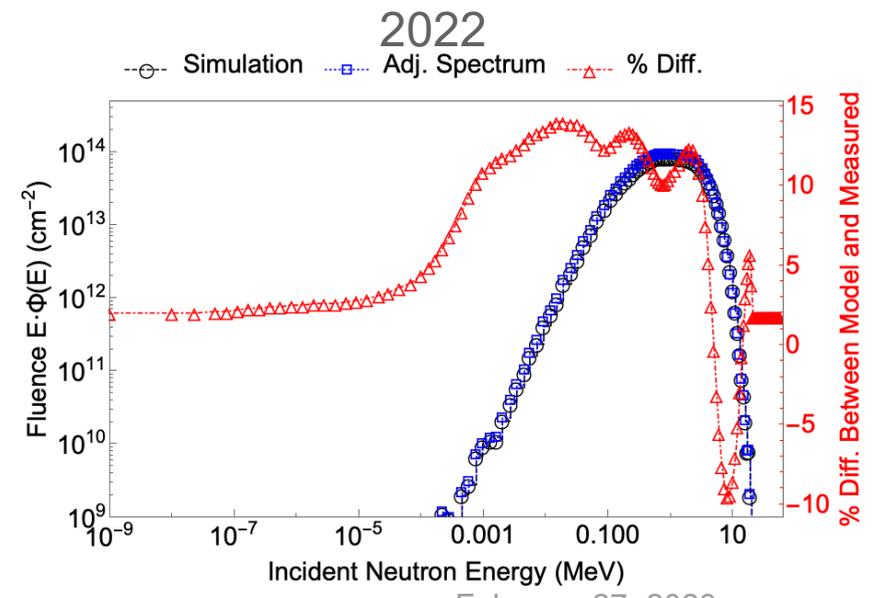
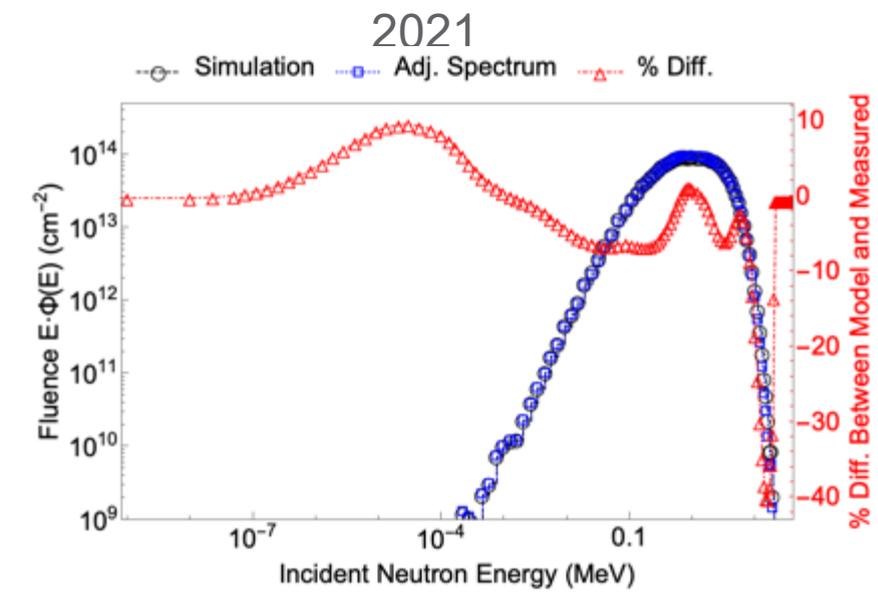
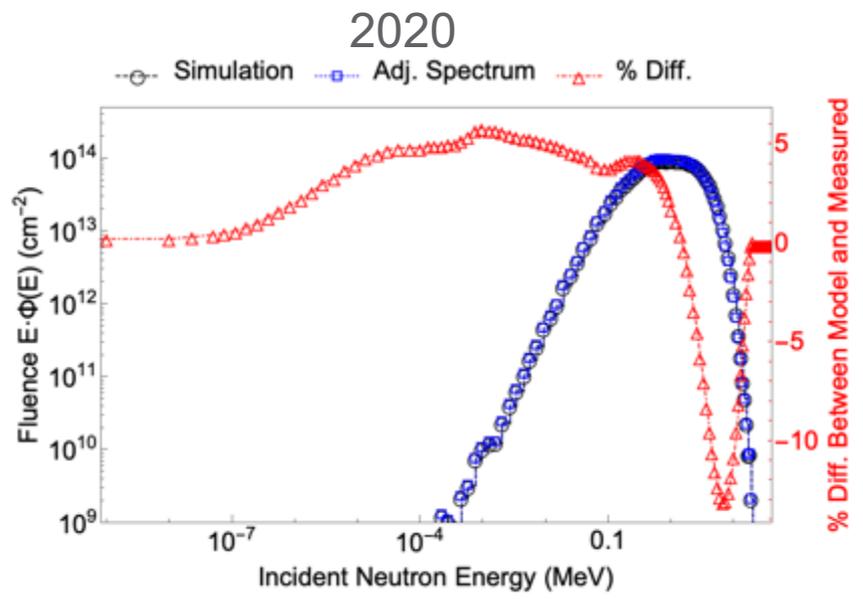
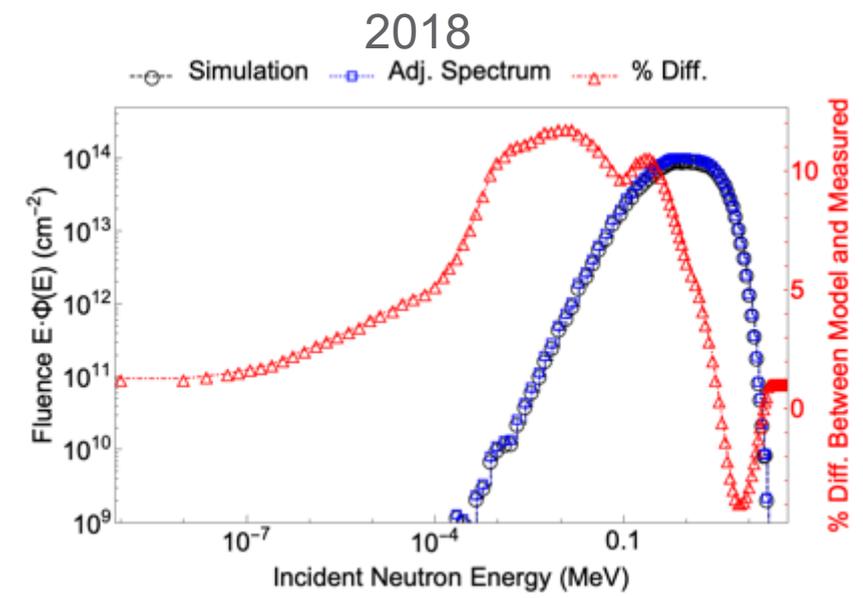
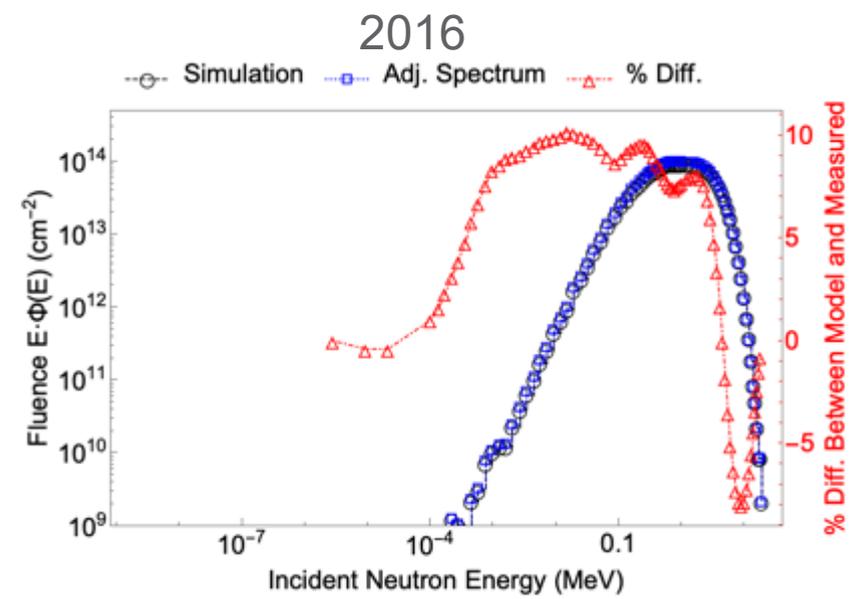
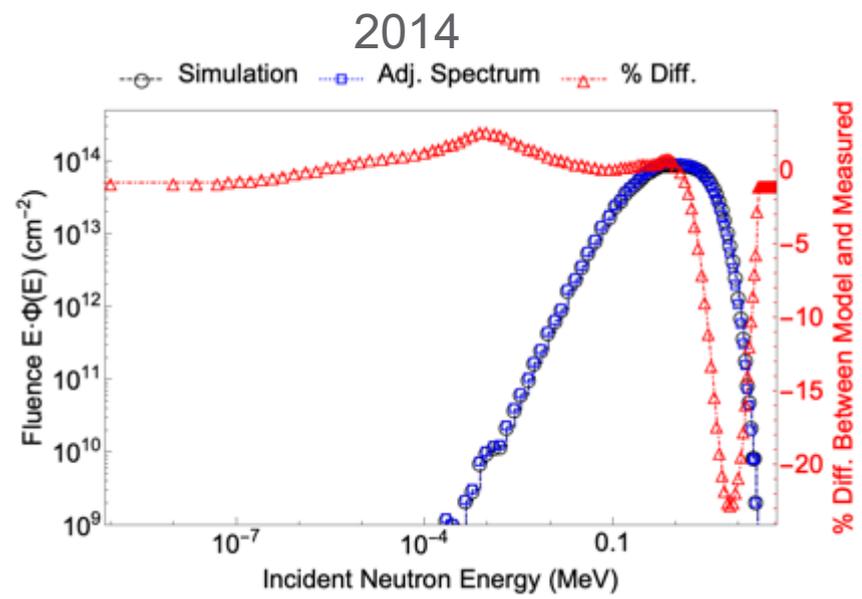
- Participated in irradiations in January & May 2022
  - Concluded independently based on PNNL monitors that burst repeatability was consistent to within 2-3% across the activation product monitored energy range for 70C temperature bursts
  - This is also consistent with the NNSA NA-22 Short-lived Fission Yield project's data
    - ✓ 6 bursts collected from 2014-2022
    - ✓ 150C pulse-to-pulse differences ~4% based on inter-year comparisons





# Fluence Response 6 pulses

U235 Fissions/atom	Total Fluence (n/cm <sup>2</sup> )
3.39E-10	2.72E14
3.75E-10	3.01E14
3.77E-10	3.02E14
3.57E-10	2.86E14
3.43E-10	2.76E14
3.85E-10	3.09E+14



# Short-Lived Fission Product Yields (SLFPY)

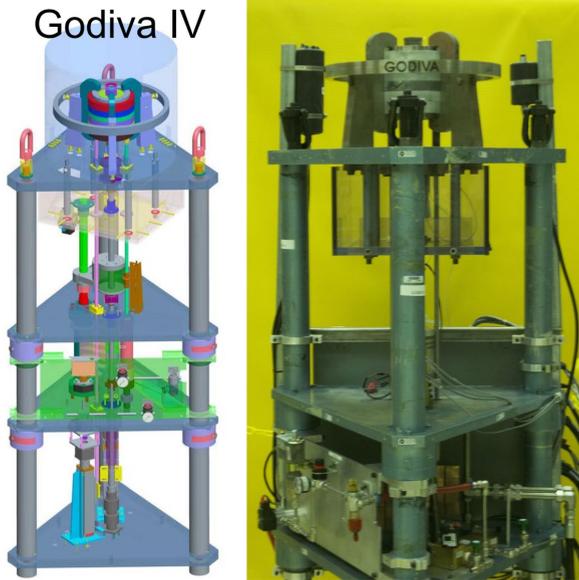
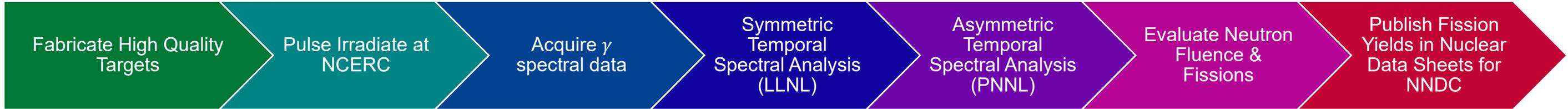
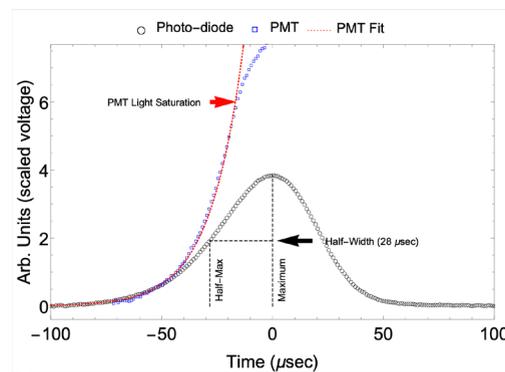
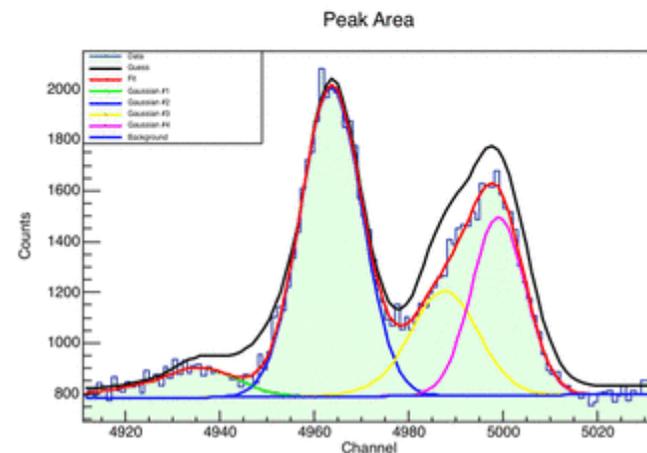
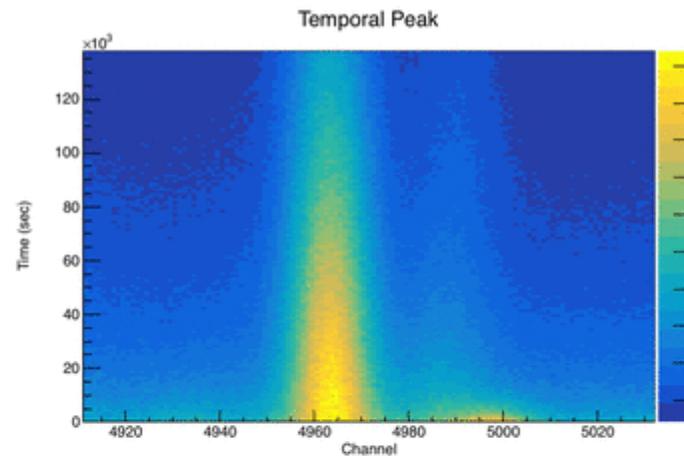


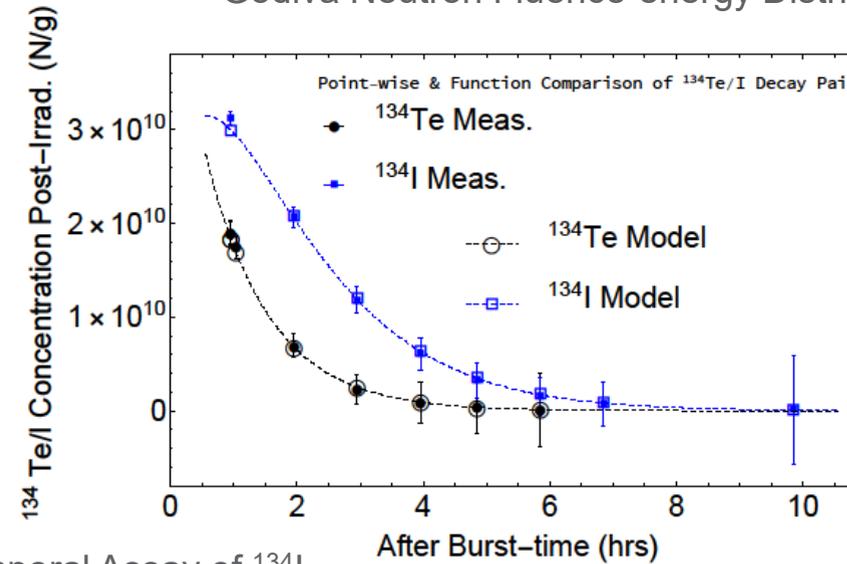
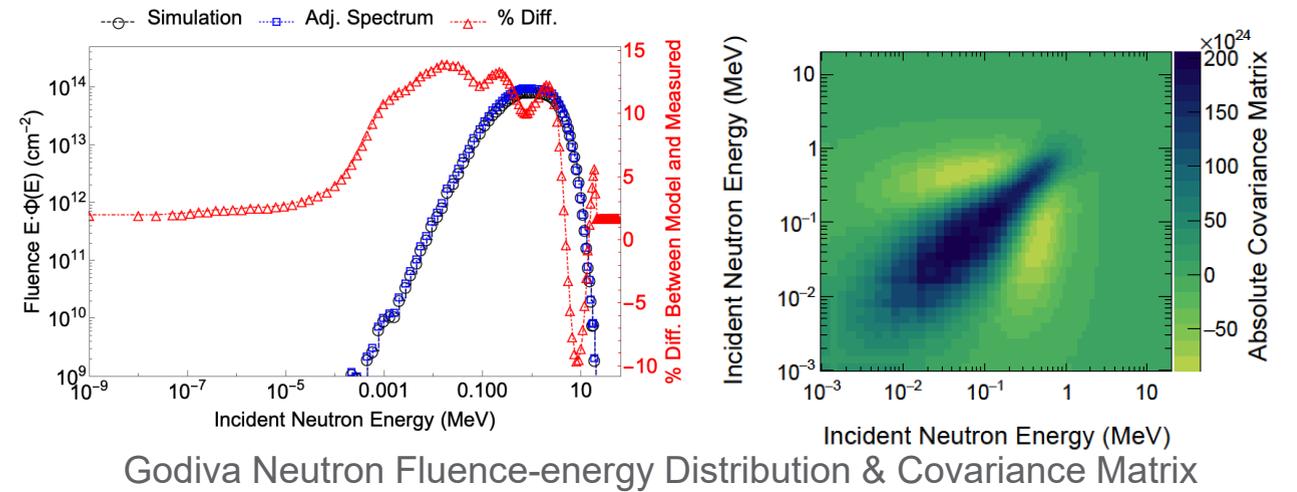
Photo & Model of Godiva



Godiva Irradiation Pulse Width



Symmetric Temporal Assay of  $^{134}\text{I}$   
PNNL-SA-182105



Nuclear Data Sheets **155**, 86 (2019).  
Nuclear Data Sheets **163**, 249 (2020).

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**Thank you**

