LLNL FY21 NCSP Overview
Task Manager Report

Presented at the
Nuclear Criticality Safety Program’s Technical Program Review
February 15, 2022

Catherine Percher
FY21 LLNL Budget Information

<table>
<thead>
<tr>
<th>Element</th>
<th>Carryover</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS</td>
<td>$24,797</td>
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<tr>
<td>AM</td>
<td>$88,109</td>
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<tr>
<td>IPD</td>
<td>$51,366</td>
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<tr>
<td>IE</td>
<td>$264,384</td>
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<tr>
<td>ND</td>
<td>$138,748</td>
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<tr>
<td>TE</td>
<td>$44,699</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$612,202</strong></td>
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</tbody>
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LLNL Budget by Element, $K
COVID-19 Impacts

- Majority of LLNL employees were working from home
  - Difficult to mentor new and younger staff
  - Operations impacts
    - Inspection and fabrication shops at reduced capacity
    - COVID controls, updated procedures, and compliance reviews for all operations
    - PPAC glovebox formal restart needed

- Procurements and Supply Chain
  - IER 480, TEX-Pu for Thermal Scattering Laws, six month delay in procuring plastic parts due to world-wide resin shortage

- Travel Restrictions and Onerous Approval Processes
  - Impacts collaboration
2021 Major IE Accomplishments

- LLNL finalized second TEX benchmark for ICSBEP (TEX-Pu with Tantalum) LLNL submitted third TEX benchmark to ICSBEP (TEX-HEU baselines)
- LLNL (with LANL) completed four additional TEX-Pu experiments, with polyethylene and Lucite to test thermal scattering laws
- Final Design Completed for TEX-Pu Variation with Fe and Mn absorbers for Tank Farm Validation
PMM-002 (1-5) and PMM-003 (6-10, with Ta) Results, Compared with other Pu Benchmarks
2021 Major IE Accomplishments

- Yield and Photo Doppler Velocimetry Measurements on Godiva Completed
- Finished preliminary design Pulse Neutron Die Away experiments for Thermal Scattering
- Finished preliminary design for New Horizontal Split Table for critical experiments
2021 Analytical Methods Accomplishments

- TSL Data Generation with FUDGE, excellent agreement with broomstick benchmarks
- COG 1-step Pu Criticality Slide Rule calcs agree with MCNP-FISPACT. Completed 2250 cases
- Completed additional COG benchmarks for international intercomparison

2021 Nuclear Data Accomplishments

- Delayed fission gammas implemented in COG to support Pu Slide Rule
- Parallel Plate Avalanche Counter (PFNS) target fabricated for $^{240}\text{Pu}$ PFNS Chi Nu measurement
- Cadmium capture gamma measurement data from Belgya identified and tested in COG with SILENE CAAS benchmark
- LLNL to host ND2022 in July 2022
2021 Training and Education Accomplishments

- Provided lecture and experimental instruction for 2 week NCSP Hands-on Courses and pilot Criticality Safety Officer course

- Collaborated with UC Berkeley Nuclear Engineering Department to teach a Nuclear Criticality Safety semester course as part of an NCS pipeline
  - Criticality evaluation term project
  - Hands-on approach to critical experiments using the LLNL Inherently Safe Subcritical Assembly
2021 IPD Accomplishments

- Maintained NCSP Website, upgraded to Drupal, created NDA website
- Completed draft SINBAD evaluation for the CH$_2$ and blank pulsed sphere experiments
- Supported IT at NNSS, NCERC control room upgrades, NTS-SLAN, iSRD, and instrument and electronics inspections.
FY21 NCSP Website Statistics

From Internal Pages

- ncsp.llnl.gov/training.php: 22%
- ncsp.llnl.gov/information_preservation.php: 12%
- ncsp.llnl.gov/program_management.php: 7.9%
- ncsp.llnl.gov/integral_experiments.php: 7.1%
- ncsp.llnl.gov/cssg.php: 6.5%
- Others: 44%

To Internal Pages

- ncsp.llnl.gov/trainings.php: 29%
- ncsp.llnl.gov/information_preservation.php: 14%
- ncsp.llnl.gov/program_management.php: 13%
- ncsp.llnl.gov/integral_experiments.php: 6.9%
- ncsp.llnl.gov/cssg.php: 6.4%
- Others: 31%

4,379 page views

Incoming traffic

- 506 from internal pages
- 0 from internal searches
- 837 from search engines
- 1 from social networks
- 122 from websites
- 0 from campaigns
- 2,683 direct entries

Outgoing traffic

- 2,721 to internal pages
- 0 internal searches
- 129 downloads
- 62 outlinks
- 1,428 exits

230 page reloads
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