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Operations Overview of the Los Alamos Neutron Science Center (LANSCE)

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The Los Alamos Neutron Science Center (LANSCE) is a very flexible H-/H+ 800-MeV proton linear accelerator and storage ring that serves five distinct user facilities in support of LANL's national security mission and commercial applications. It is unique because of the intensity and energy spectrum of the neutrons produced. The Isotope Production Facility (IPF) operates using an H+ beam line at 100-MeV. The Proton Radiography Facility uses the 800-MeV H- beam stripped to protons. The Ultra-Cold Neutron (UCN) Facility, the Lujan Center, and the Weapons Neutron Research (WNR) Center all use spallation neutrons from tungsten targets with water and liquid hydrogen moderators for Lujan, a solid deuterium moderator for UCN, and no moderation at WNR. These spallation targets all receive 800-MeV beam each with a unique beam pulse structure specific to that target. LANSCE celebrated its 50-year anniversary of 800-MeV beam during the summer of 2022. We will summarize operational experiences and challenges at a half-century old accelerator facility, including recent improvements and current upgrade plans.

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Footnotes

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Yes

Primary authors: GULLEY, Mark (Los Alamos National Laboratory); CARLSTEN, Bruce (Los Alamos National Laboratory); Dr MOODY, Nathan A. (Los Alamos National Laboratory)

Co-author: RUSSELL, Steven (Los Alamos National Laboratory)

Presenters: GULLEY, Mark (Los Alamos National Laboratory); RUSSELL, Steven (Los Alamos National Laboratory)

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