

Abstract Submitted
for the DNP17 Meeting of
The American Physical Society

The performance of the upgraded Los Alamos Neutron Source¹

TAKEYASU ITO, Los Alamos National Laboratory, LANL UCN SOURCE COLLABORATION — Los Alamos National Laboratory has been operating an ultracold (UCN) source based on a solid deuterium (SD2) UCN converter driven by spallation neutrons for over 10 years. It has recently been successfully upgraded, by replacing the cryostat that contains the cold neutron moderator, SD2 volume, and vertical UCN guide. The horizontal UCN guide that transports UCN out of the radiation shield was also replaced. The new design reflects lessons learned from the 10+ year long operation of the previous version of the UCN source and is optimized to maximize the cold neutron flux at the SD2 volume, featuring a close coupled cold neutron moderator, and maximize the transport of the UCN to experiments. During the commissioning of the upgraded UCN source, data were collected to measure its performance, including cold neutron spectra as a function of the cold moderator temperature, and the UCN density in a vessel outside the source. In this talk, after a brief overview of the design of the upgraded source, the results of the performance tests and comparison to prediction will be presented.

¹This work was funded by LANL LDRD.

Takeyasu Ito
Los Alamos Natl Lab

Date submitted: 29 Jun 2017

Electronic form version 1.4