Abstract Submitted
for the APR14 Meeting of
The American Physical Society

Update on the Los Alamos UCN Source MARK MAKELA, Los Alamos National Lab — The ultracold neutron (UCN) source at Los Alamos National Lab has been running since 2005. During this time the source production has steadily increased due to upgrades. The source feeds two experimental beam lines. The primary beam line feeds the UCNA spectrometer and the other feeds the UCN lifetime experiment and various small scale experiments. The source produces UCN from spallation neutrons by first moderating them to cold temperatures with cold polyethylene and five Kelvin deuterium; these cold neutrons then knock off a phonon in the cold deuterium and become UCN (this final step is not an equilibrium process). In preparation for upgrading the beam delivery system to the spallation target several studies have been done to determine the best beam pattern to derive the maximum UCN density in experiments. The results of these studies and the predicted increase in ucn density will be presented. In addition to these studies a new ucn source design will be presented.

Mark Makela
Los Alamos National Lab

Date submitted: 10 Jan 2014 Electronic form version 1.4