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Production of Ultracold Neutrons for the UCNA Experiment[1]
RAYMOND RIOS, Los Alamos National Lab, UCNA COLLABORATION — Ultracold Neutrons (UCN) have temperatures below about 4mK and energies below about 300 neV. At this temperature, the neutron energy is within the Fermi surface potential range of some materials making it possible to transport and bottle neutrons which can be used for extremely low background neutron beta decay measurements. The UCNA collaboration has been commissioning a UCN source which incorporates moderating spallation neutrons off a tungsten target at the Los Alamos National Lab's 800 MeV proton beam facility, LANSCE, for polarized beta decay measurements. In the past year changes to the source have lead to more than an order of magnitude increase in UCN out into the experiment, making a significant step towards realizing a high precision UCN beta-asymmetry measurement. We will present an overview of the UCN source, the specific contributions of each of the major improvements from last year, and improvements planned for the 2008 run cycle.

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