Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Improvements in Measuring Fission-Neutron Spectra at a White Neutron Source[1] ROBERT HAIGHT, Los Alamos National Laboratory, CHI-NU COLLABORATION — The spectrum of neutrons emitted in fission induced by MeV neutrons is important for a wide range of applications and for testing models of fission physics. At the Los Alamos Neutron Science Center, we are developing a program to improve the experimental data base for neutron-emission spectra from fission induced by incident neutrons from 0.5 MeV to 200 MeV. These experiments are based on double time-of-flight techniques to determine the energies of the incident and emitted neutrons. Parallel-plate avalanche detectors with excellent timing characteristics are being developed to identify fission in actinide samples. A large neutron-detector array is being assembled to detect the fission neutrons. Design considerations for the array include neutron-gamma discrimination, neutron energy resolution, angular coverage, segmentation, detector efficiency calibration and data acquisition. The status of these developmental activities and preliminary tests of the components will be presented.

[1]This work was performed under the auspices of the U.S. DOE under contracts Nos. DE-AC52-07NA27344 and DE-AC52-06NA25396.

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Date submitted: 30 Jun 2009 Electronic form version 1.4