



Contribution ID: 64

Type: **not specified**

Preliminary Measurement of Neutron Energy Spectrum of the White Neutron Beam Line at CYCIAE-100

China Institute of Atomic Energy (CIAE) has built a 100 MeV compact high-intensity proton cyclotron (CYCIAE-100), the largest compact high-intensity proton cyclotron in the world with both the higher energy and a maximum current intensity of 520 μA . As two of several beam lines designed for multi-application purposes, both white neutron beam lines based on the proton beam injected by CYCIAE-100, located at 0° and 15° angles from the center of the neutron generating target are constructed. In this work, we report a preliminary measurement of the 0° neutron energy spectrum by means of the time-of-flight method. In the measurement, pulse shape discrimination (PSD) method utilizing double scintillators (scattering detector and main detector) is employed to reduce the amount of gamma-ray radiation background in the TOF spectrum. The CYCIAE-100 proton beam can generate neutrons with energies up to 100 MeV by spallation reaction and elastic scattering, but only a neutron energy range of 1.75-12.0 MeV is studied due to the detectors linear-response dynamics and the short flight distance between the two detectors.

Primary authors: Prof. YU, Tongpu (NUDT); MA, Xu (NUDT); Prof. BAO, Jie (CIAE); Prof. ZHAO, Zijia (NUDT)

Presenter: MA, Xu (NUDT)

Session Classification: Poster Session

Track Classification: Poster session