

Measurement of the neutron flux with small collimator of Back-n #ES1 at

CSNS

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Back-streaming neutron beam line, named Back-n, is a newly constructed facility at China Spallation Neutron Source (CSNS). Back-n is a white neutron source providing neutrons from 0.5eV to ~200 MeV for nuclear data measurement, neutron radiography, neutron irradiation and detector calibration based on the time-of-flight (TOF) method. The knowledge of the neutron flux is of crucial importance for feasibility study and data analysis of all the experiments and measurements to be conducted at Back-n. This work will report the first measurement of the neutron flux with small collimator at Back-n end station 1 (#ES1). The neutron flux is characterized by three different detection systems in different energy regions: a fission ionization chamber (FIXM) for full energy region (0.5 eV–200MeV), a silicon array (⁶Li-Si monitor) for low energy region (below 10 keV) and recoiling proton telescopes for high energy region (above 10 MeV). The measurement and the analysis of above three detection systems will be reported. The preliminary results of the neutron flux from 0.5 eV to ~200 MeV will be presented.