Contribution ID: **94** Type: **not specified**

Progress in the Measurement of the Neutron-Induced Fission Cross-Section at CSNS Back-n

Tuesday, 27 May 2025 14:00 (20 minutes)

China Spallation Neutron Source (CSNS) is a newly built large scale facility in 2018. It is generating neutrons by bombarding 1.6 GeV protons into a tungsten target for multidisciplinary research. A back-streaming neutron beamline (Back-n) at CSNS is built at the reverse direction regarding to the proton beam mainly for the nuclear data measurement. Back-n is characterized by its wide energy range (from thermal to 300 MeV), high flux (up to 10^7 n/cm^2/s at 77 m) and good energy resolution (less than ˜1% below 1 MeV), which stands as one of the state-of-the-art white neutron source in worldwide. Fission cross-section of a series of isotopes, such as ^{232}Th, ^{235}U, ^{236}U, ^{238}U, ^{239}Pu, has been measured in wide energy ranges since 2018, and more isotopes (such as minor actinides) are planned to be measured in the near future. In this presentation, the CSNS Back-n facility and the campaigned fission cross-section measurement will be reviewed. Then the challenges and perspectives of the fission cross-section measurement at CSNS Back-n will be highlighted.

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Session Classification: Parallel Session 1: Fundamental interactions & symmetries in neutron induced reactions/Properties of compound states, nuclear structure/Intermediate and fast neutron induced reactions/Nuclear fission

Track Classification: Parallel session: Parallel session 1