

Shielding Design for CSNS Experimental System

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Abstract

Shielding calculation have been performed for Chinese Spallation Neutron Source (CSNS) Experimental System that relies on Monte Carlo and discrete ordinates simulation. During the calculation, MCNPX and DORT radiation transport codes are used respectively. For the target station, we find that adding a thin concrete layer with its thickness about 0.3m in the steel shield like a sandwich structure is very effective to attenuate neutron dose rate. As a hundred kW-level source, we do not need to use tungsten insert in the shutter gate. We also give the shielding design for Beam Line HIPD to get the primary data for the beam line shielding structure.