Neutron shielding studies of the RTBT line at the SNS
THILOSHANA RANAWAKA, ANTON EMPL, ED HUNGERFORD, Dept. of Physics, University of Houston, Houston, TX 77204 — The SNS is an accelerator based neutron source in Oak Ridge, Tennessee. This unique facility provides the most intense pulsed neutron beams in the world, which are produced by bombarding a mercury target with energetic protons from a large accelerator complex. A high intense pulsed proton beam traveling through the RTBT (Ring to Target Beam Transport) line produces a high neutron background outside the target building. Detailed analysis of this background must clearly be understood for a potential neutrino detector that may be built outside the target building. We present here preliminary results of the neutron background using the most recent Monte Carlo particle transport codes FLUKA and MCNP. These results can be used as a reference for the neutron shielding studies.

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