

NUMERICAL AND EXPERIMENTAL STUDY FOR THE CHARACTERIZATION OF THE SPALLATION TARGET PERFORMANCE OF THE ULTRACOLD NEUTRON SOURCE AT THE PAUL SCHERRER INSTITUT

Tuesday 10 September 2013 18:00 (3 hours)

Results of numerical calculations and the experimental characterization of the neutron flux profile at the ultracold neutron (UCN) source of the Paul Scherrer Institut (PSI) are presented. At first, the MCNPX-based model of the Monte-Carlo simulation with its detailed description of the so-called “Cannelloni”-type spallation target assembly and the realistic proton beam profile modeling is described. Thereafter the experimental determination of the thermal neutron flux profile using gold foil activation, along the height of the UCN tank, starting from the proton beam plane, is presented. Both calculations and measurements were performed for standard beam parameters, with the full proton beam on target. Finally, a comparison of simulation and experimental result is discussed.

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Session Classification: Poster, BBQ & Drinks