# Preliminary Results of the STU Mini Labyrinth Radiation Shielding Experiment

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**Abstract.** The Mini Labyrinth experiment is a simple neutron and gamma shielding experiment developed at STU, inspired by the ALARM-CF-AIR-LAB-001 ICSBEP benchmark experiment, originally constructed in the former Soviet Union in 1982. Compared to the original Labyrinth, which was made from concrete blocks and had dimension of several meters, the STU Mini Labyrinth is approximately ten times smaller and consists of NEUTRONSTOP shielding blocks. The purpose of this experiment is to validate the computer codes of STU and partners involved in the APVV-DS international project "Experimental and simulation shielding studies of materials used in radiation protection". This paper gives a brief overview of the experimental workplace and brings the first experimental results and their comparison with computer simulation. The very first experiment performed in the Mini Labyrinth experimental workplace was focused on the measurement of neutron and gamma count rate inside the Mini Labyrinth using the Thermo Scientific RadEye dose meter. The experimental setup also consisted of a PuBe radioisotope neutron source and light water moderator placed in a plastic tank between the neutron source and the detector. The simulation part was carried out using the state-of-the-art MCNP6 and SCALE6 MONACO stochastic calculation tools taking into account the detailed geometry of the labyrinth and a combined neutron-gamma source of particles. The comparisons were performed between codes, based on dose rate in the unique detection positions and using a 3D map of neutron and photon fluxes, using the so called meshtallies. The comparison between the simulated and measured data was performed based on the measured neutron count rate.