Simulation of Radiation Dose Around the Planned DD Neutron Generator at STU

Branislav Vrban[1, a)], Štefan Čerba[1, b)], Jakub Lüley [1, c)], Vendula Filová[1, d)] and Vladimír Nečas[1, e)]

[1] *Slovak University of Technology in Bratislava, Faculty of Electrical Engineering and Information Technology, Institute of Nuclear and Physical Engineering, Ilkovičova 3, 812 19 Bratislava, Slovakia*

[a)] Corresponding author: branislav.vrban@stuba.sk
[b)] stefan.cerba@stuba.sk
[c)] jakub.luley@stuba.sk
[d)] vendula.filova@stuba.sk
[e)] vladimir.necas@stuba.sk

Abstract. The paper aims to assess the usability of vacant areas within the Slovak University of Technology in Bratislava, to procure and install a new deuterium-deuterium neutron generator. The complex 3D model of the vacant areas either with their close vicinity is modelled in the SCALE system and the first simulations of radiation doses at the 3 principal positions are calculated utilizing the MAVRIC sequence and variance reduction methods. The assumed energy of neutrons emitted from the generator is 2.5 MeV, whereas a first approximation, the isotropic distribution is assumed. A discussion about the model simplifications and the first radiation dose results are provided.