Contribution ID: **151** Type: **Poster**

GEANT4 Simulations of the Low Energy Neutron Beam Formation

Tuesday, 27 September 2016 18:40 (0 minutes)

By means of program GEANT4 the research of possibility obtaining low energy neutron beams was performed. To get the neutron flux 18 MeV external proton beam from cyclotron C18/18 is planned. As a source of neutron flux is planned proton induced reactions on 9Be target. The neutron yield dependence on the thickness of beryllium target was investigated. The problems of reducing the ratio of gamma and neutron yields by inserting a lead sheet after the target of beryllium have been studied. By GEANT4 modeling the optimal thickness of lead was determined. By GEANT4 simulation of beam shaping assembly, included reflector and moderator was considered.

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Session Classification: PS2: Poster Session