**System of a Thin Lithium Layer Deposition for an Accelerator Based Neutron Source**

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A neutron source for BNCT has been created at BINP on the basis of an electrostatic tandem accelerator with vacuum insulation providing up to 2.3 MeV proton energy and up to 8.6 mA current. Neutrons are generated on a solid lithium target as a result of the $^{7}Li(p,n)^{7}Be$ reaction. This paper describes a newly developed system of vacuum thermal deposition of a thin lithium layer on a neutron generating target substrate. The system includes: a glove-box filled with argon, a hydraulic extruder of lithium-7, a vacuum evaporation unit with a moving heater and observation windows. After deposition, the lithium target together with the gate valve under vacuum is disconnected from the evaporation unit and transported to the accelerator. In this work visually uniform lithium layers were deposited with the residual gas pressure of $5 \cdot 10^{-5}$ Pa with different thicknesses: from 10 to 84 microns. The thickness of the layer is calculated based on the mass of evaporated lithium, which was previously weighed using micro analytical balances. By dissolving the lithium layer in distilled water and measuring the conductivity of the resulting solution, it was determined that the loss of lithium during deposition does not exceed 2 %. In the near future it is planned to measure the profile of the deposited lithium layer and to sputter a cover film protecting lithium from air.

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