

Proton beam of 5 mA in the Tandem Accelerator with Vacuum Insulation

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A source of epithermal neutrons based on a tandem accelerator with vacuum insulation for boron neutron capture therapy of malignant tumors was proposed and constructed in BINP. Stationary proton beam with 2 MeV energy, 1.6 mA current, 0.1% energy monochromaticity and 0.5% current stability was obtained in 2014. To increase the proton beam current the accelerator was upgraded in 2016. The modernization significantly suppressed the unwanted charged particle flows in the accelerator which resulted in the improved high voltage stability of acceleration gaps and enabled an increase in the proton beam current from 1.6 mA to 5 mA. What is the current value sufficient for BNCT? The report presents and discusses the details of the modernization, and the experimental results including the results of experiments on the long-term generation of neutrons at high current.