

Electrostatic accelerator EG-5: promising neutrons source

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The Van de Graaff generator EG-5 is a single in JINR electrostatic accelerator of charge particles with energy range up to 4.1 MeV. At the moment, it is capable of accelerate a beams of protons, helium ions and deuterons up to energies of 2.1 MeV at a beam current of up to 10 μ A. At the moment the preparations are going to the modernization of EG-5, after which it will reach a 4.1 MeV at a beam current of up to 200 μ A.

The relatively small ion beam current makes it possible today to obtain a fast monochromatic neutrons with energy range of up to 5 MeV (reaction D (d, n) ³He). After modernization, the beam current will be increased to 100-150 μ A, which make it possible to obtain neutrons with energies up to 20 MeV (reaction D (T, n) ³He). According to the Nuclear Data High Priority Request List [1], this energy range is highly demanded in modern nuclear physics research. At the moment, a scientific program for the post-modernization period of the accelerator operation is planning.

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¹Nuclear Data High Priority Request List: <https://www.oecd-neo.org/dbdata/hprl/search.pl?vhp=on>.