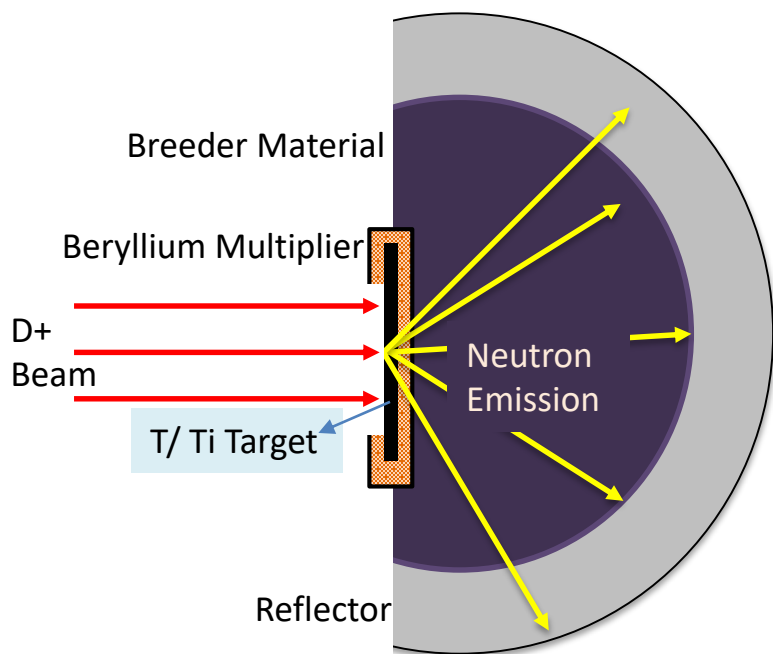


Neutronic simulation of medical radioisotope ^{99}Mo and ^{177}Lu production in IPR 14 MeV neutron generator facility

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Simulated isotope production facility with Beryllium multiplier, HDPE moderator and graphite reflector.

The high flux neutrons produced by IPR 14 MeV Neutron generator could be employed for radioisotope production. ^{99}Mo and ^{177}Lu are used as diagnostic radiopharmaceuticals to detect and monitor the extent of cancer. Their new production routes are being explored that could be employed for small scale production.

The paper explores the production capability by using neutron moderators and reflectors like beryllium, HDPE, graphite, etc. In a day of operation this generator can produce 0.93 Ci of ^{99}Mo and 0.3 Ci of ^{177}Lu , which is capable of producing sufficient dose for up to 46 and 30 patients/ procedures.

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