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Pulsed Intense Lithium Beam Acceleration Test for Neutron Generator

We are proposing inverse kinematic pulsed neutron production with linear accelerators and a laser ion source. The inverse kinematic scenario is to use a lithium driver beam instead of a conventional proton beam and is effective to mitigate undesired radiation emission and provide highly directed neutron flux. To demonstrate the capability of intense neutron flux, we build a new front end of the proposed neutron production system, which consists of a laser ion source, ablation plasma confinement solenoid, and radiofrequency quadrupole (RFQ) linac. We have succeeded to obtain more than 30 mA of Li^{3+} beam which was detected behind a bending magnet. The detailed experimental setup and beam performance will be explained.

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