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Two Laser-Driven Nuclear Physics (LDNP) flagship experiments have been identified for the NSF OPAL Laser Facility

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Laser-ion acceleration mechanisms provide a unique opportunity for generating radioactive tritium beams, which are currently not available at accelerator facilities. Few datasets exist of tritium-induced reactions involving light, neutron rich nuclei like 6He, 8Li and 11Be. However, these nuclei are of high interest for nuclear science because influence the r-process as "seed nuclei"[Ter01] and are also predicted to exhibit exotic structure [Qua18, Coc12, For05]. A new platform at the OMEGA-EP laser system at the University of Rochester (UR) Laboratory for Laser Energetics (LLE) is now in a position to support nuclear science experimentation [Sch22]. In a pilot study, 10x^13 tritons were accelerated to several MeV and directed onto a deuterated target, producing 108 fusion neutrons. Follow-up experiments using lithium and beryllium targets to measure the cross sections of di-neutron transfer reactions on these light nuclei will be discussed. This material is based upon work supported by the Department of Energy [National Nuclear Security Administration] University of Rochester "National Inertial Confinement Fusion Program"under Award Number(s) DE-NA0004144.

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