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Efficient neutron generation by Coulomb explosions of multi-component cluster targets MASAKATSU MURAKAMI, MYLES ALLEN ZOSA, Institute of Laser Engineering, Osaka University — Irradiating ultra intense ultrashort laser pulses on nano size cluster targets, protons are accelerated due to Coulomb explosion, the energies of which are of the order of a few MeV. In terms of the reactions between Lithium and the protons, neutrons are generated. optimizing the laser and target parameters, we maximize the coupling efficiency of neutron yields. In particular, the cluster targets are made of two or three atomic components in order to produce quasi-monoenergetc protons. The resultant neutrons are expected to have relatively low temperatures lower than a few 100 keV because the endothermic reactions.

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