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LSP simulations of fast deuteron generation from CD_2 foils by high-intensity laser pulses BIN QIAO, UC San Diego, D.P. HIGGINSON, UC San Diego & LLNL, R.B. STEPHENS, GA, G. PETROV, NRL, M.S. WEI, GA, F.N. BEG, UC San Diego — High-energy, high-flux neutron sources have been extensively used in many areas, such as crystallography, radiography, detection of nuclear material and probing of material properties. Previous studies of nuclear reactions through either the D(d,n)^{3}He or ^{7}Li(p,n)Be^7 reactions have encountered difficulties in producing neutrons with energies > 10 MeV, required for some of the above applications. A recent novel approach [1,2] that uses the ^{7}Li(d,n)Be^8 reaction has the advantage of producing energetic neutron beams (>10 MeV) with a short pulse laser produced deuteron beam. In this meeting, we report LSP simulation results on the production of fast deuterons from CD2 foils by high-intensity laser pulses. The properties of the deuteron beam, laser to deuteron conversion efficiency, and impact of hydrocarbon contaminants on the fast deuteron acceleration will be discussed.

[1] J. Davis et al., Plasma Phys. Control. Fus. 52, 045015 (2010).
[2] D. P. Higgingson et al., submitted to Phys. Plasmas (2011).

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