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Observations of the Effect of Er-Hydride Targets on the Conversion Efficiency to Laser Accelerated Protons[1] D.T. OFFERMANN, L.D. VAN WOERKOM, The Ohio State University, Columbus, OH, A.J. MACKINNON, Y. PING, A.G. MACPHEE, N. SHEN, M.E. FOORD, J.J. SANCHEZ, Lawrence Livermore National Laboratory, Livermore, CA, C.D. CHEN, Massachusetts Institute of Technology, Cambridge, MA — For Fast Ignition Inertial Confinement Fusion using proton beams, methods must be developed to improve the efficiency in converting laser energy incident on thin foils to the accelerated proton beam from the foil's rear surface. Simulations suggest that targets with a heavy element hydride, such as ErH_3, on the rear surface will increase the conversion efficiency by a factor of two relative to proton signals originating from hydrocarbon contaminants. Using the Callisto Laser, at LLNL ((8J, 5×10^{19} W/cm^2)) we have compared proton beams originating from contaminant layers on Gold foil targets with beams from Gold targets coated with ErH_3. Contaminants were removed using an Ar-Ion etching beam. Data was collected using radiochromic film and an ion spectrometer.

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