

Abstract Submitted  
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**Fast Ignition with Laser-Driven Ion Beams**<sup>1</sup> JUAN C. FERNANDEZ, B.J. ALBRIGHT, D.C. GAUTIER, B.M. HEGELICH, C. HUANG, D. JUNG<sup>2</sup>, S. LETZRING, S. PALANIYAPPAN, R.C. SHAH, M.J. SCHMITT, L. YIN, H. WU, Los Alamos National Laboratory, J.J. HONRUBIA, Univ. Politecnica de Madrid, D. HABS, Ludwig Maximilians Universitat — We report on the US research program on fusion fast ignition (FI) using laser-driven ion beams. Compressed DT fuel can ignite with beams of quasi-monoenergetic ions, such as carbon at  $\sim 500$  MeV. The FI simulations that set the requirements and guide our work are shown. The mechanisms that enable a short-pulse laser to drive the ignitor ion beam are summarized, especially how the  $\sim$  GeV ion energies required are attained. We also aim to reduce the C-ion energy spread to  $\sim 10\%$  over the energy range of  $\sim 0.1 - 1$  GeV. The latest 1, 2 and 3 dimensional simulations on ion acceleration are shown. Those simulations guide our ion experimental work at the Los Alamos Trident laser facility. Our experimental results are summarized, followed by a discussion of the salient issues and the way our project is addressing them.

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