

Abstract Submitted  
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**Dynamic defects for diagnosing ICF burn degradation mechanisms<sup>1</sup>** MARK SCHMITT, PAUL BRADLEY, GLENN MAGELSEN, Los Alamos National Laboratory — We have analyzed the effects of using a short pulse ion beam to provide a precise dynamic defect with which to perturb burn in a NIF ignition or sub-ignition capsule. A short pulse of carbon ions can be produced using the ARC laser at NIF by focusing it onto a thin curved diamond target outside the hohlraum. Using the Target Normal Sheath Acceleration (TNSA) mechanism, a 100 MeV-class, 100J-regime carbon beam can be produced and targeted to intercept a 100x100 micron<sup>2</sup> patch on the ignition capsule surface during its implosion. By applying this dynamic energy deposition or “defect” relatively late in the implosion sequence, a separation of perturbed implosion shock effects from material mix effects (at the defect location) can be achieved. This provides a tunable platform for investigating and validating ICF yield degradation effects from changes in material morphology. Simulation results showing yield degradation from various perturbation fluxes and injection times will be shown.

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