

Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Measures of Alpha Heating in Inertial Confinement Fusion R. BETTI, A.R. CHRISTOPHERSON, Fusion Science Center and Laboratory for Laser Energetics, U. of Rochester — Assessing the degree to which fusion alpha particles contribute to the fusion yield is essential to the understanding of the onset of the thermal runaway process of thermonuclear ignition. It is shown that in inertial confinement fusion, the yield enhancement resulting from alpha particle heating (before ignition occurs) depends on the fractional alpha energy or, equivalently, on the generalized Lawson criterion. Both the fractional alpha energy and the generalized Lawson criterion can be inferred from experimental observables. This result can be used to assess the performance of current ignition experiments at the National Ignition Facility. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944 and the Office of Fusion Energy Sciences Number DE-FG02-04ER54786.

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Date submitted: 07 Jul 2014

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