

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Thermonuclear ignition criterion in ICF¹ BAOLIAN CHENG, Los Alamos National Laboratory — The Lawson criterion, which determines the onset of thermonuclear ignition in inertial confinement fusion (ICF), is re-derived in terms of physical measurable quantities: the hot spot ion temperature T and the areal density (ρR) of the deuterium-tritium (DT) gas. From this criterion, an ignition curve is generated in the $\rho R - T$ plane. In addition, a minimal required implosion energy for laser-drive and a minimal DT gas mass for a sustainable ignition with respect to the condition are derived.

¹This work was performed under the auspices of the U.S. Department of Energy by the Los Alamos National Laboratory under contract number DE-AC52-06NA25396.

Baolian Cheng
Los Alamos National Laboratory

Date submitted: 15 Jul 2010

Electronic form version 1.4