

Optimization of driven laser pulse of Double-Cone Ignition scheme using program MULTI-2D

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Double-cone ignition (DCI) scheme is a promising fast-ignition scheme for the laser driven fusion energy [1-2]. DCI scheme employs two gold cones to guide the spherical implosion of plasmas with an aim to obtain highly compressed plasmas. The compressed plasma is heated to high temperature by magnetic field guided fast electron beams generated by PW laser pulses. The exist of gold cones make it a necessary to simulate the plasma implosion with two-dimensional hydrodynamic codes. In this report, we present the two-dimensional simulations of the plasma implosions in the DCI scheme with the program MULTI-2D [3-4]. The driven laser pulses are optimized by machine learning methods to obtain a high-density isochoric plasma for the following fast heating process.

Keywords: Double-Cone Ignition; Implosion; MULTI-2D; Machine learning

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