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Hydrodynamics Instability in Cone-guided Implosion for Fast Ignition HIDEO NAGATOMO, TOMOYUKI JOHZAKI, ILE Osaka University, ATSUSHI SUNAHARA, ILT, KUNIOKI MIMA, ILE Osaka University — The fast ignition scheme is one of the most fascinating and feasible ignition schemes for the inertial fusion energy. Fast Ignition Realization Experiment phase one (FIREX-I) program has been carried out at ILE Osaka since 2003. In the program, the most significant challenge is to heat the high-density DT fuel plasma which is imploded by the GXII laser system using non-spherical cryogenic target. Even though this cone-guided implosion process has been studied experimentally and computationally for a few years, it has some unsolved problems which must be solved before the experiments. In this paper, a computational study of those implosion physics and target design for FIREX-I experiment is discussed. In this work, we estimate the affect of RT instability of mode 4 32 which is perturbed on the shell target initially. Considering this result, we design the target structure and laser pulse shape for the FIREX-I experiment, and evaluate the formation of fuel core plasma quantitatively. This work was supported by JSPS (15GS0214).

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