Abstract Submitted
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A Survey of Different Perturbation Amplification Mechanisms in the Early Stages of Inertial Confinement Fusion Implosions[1] VALERI GONCHAROV, SAMUEL MILLER, RADHA BAHUKUTUMBI, Laboratory for laser Energetics, University of Rochester — Hydrodynamic instability growth during shell acceleration put severe constraints on target designs in inertial confinement fusion (ICF) experiments. These instabilities are seeded during the early stages of an ICF implosion when shocks launched by intensity pickets and a main drive pulse propagate through the shell. In addition to the well-known mechanisms of early-time perturbation amplification caused by the RichtmyerMeshkov and Rayleigh-Taylor instabilities at the ablatorDT interface, compression waves launched as a result of shock interaction with material interfaces also contribute to perturbation amplification. This talk will summarize several mechanisms contributing to the early-time perturbation evolution relevant to various ICF target designs. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0003856.

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