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Progress on weakly nonlinear hydrodynamic instabilities in spherical geometry

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The low tolerable degree of the small hot-spot to the high growth of hydrodynamic instability is the fundamental difficulty to achieve inertial-confinement fusion (ICF).

A series of decomposed essential physics processes that are associated with ICF implosions are investigated. High growth of multi-interface Rayleigh-Taylor & Bell-Plesset integrated instabilities is the main challenge to achieve one-dimensional spherical implosions. Several controlling methods to improve the ICF implosion stability has been proposed.

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