Abstract Submitted
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Interfacial perturbation classification of a fluid impulsively driven through a honeycomb mesh into a gas-filled cavity[1] TAKIAH EBBS-PICKEN, RUBERT MARTN PARDO, McGill University, DAVID PLANT, General Fusion, ANDREW HIGGINS, JOVAN NEDIC, McGill University, MCGILL UNIVERSITY COLLABORATION, GENERAL FUSION COLLABORATION — We investigate the development of perturbations on a liquid-gas interface created by the impulsive motion of fluid through a honeycomb mesh. The effects of implosion speed, mesh geometry, angular velocity of the interface, and initial liquid depth relative to the mesh were experimentally investigated to determine their effects on the geometry of the perturbations formed. An experimental arrangement was created that allowed for the visualization of the cavity surface, and a classification based on the perturbation geometry was developed. Five different perturbations were observed, which were classified as follows: none, wavy, sharp, jetting and complex. The results showed that the parameter which had the largest impact on the initial perturbation growth was the fill depth of the liquid relative to the mesh, while the angular velocity and implosion speed had limited effects.

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