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Cavitation Collapse Near Slot Geometries ELIJAH ANDREWS, IVO PETERS, University of Southampton — Vapor bubbles in water collapse towards a nearby solid boundary producing a jet that can clean, or damage, the boundary. It is useful to understand how different boundary geometries will affect the direction in which the jet is produced. The majority of research so far has focused on simple flat boundaries or limited cases with analytic solutions such as axisymmetric boundaries. We numerically and experimentally investigate how a slot in a flat boundary affects the jet direction of a single bubble. We use a boundary element model to predict how the jet direction depends on key parameters and show that the results collapse to a single curve when the parameters are normalized appropriately. We then experimentally verify the predicted dependencies using laser induced cavitation and compare the experimental results to the predicted dependencies. This research provides useful insights into how jet direction is affected by slot geometries and demonstrates a method that can be used to investigate other complex geometries.

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