

Bubble collapse near porous plates

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A bubble collapsing near a solid boundary displaces towards the boundary and produces a high-speed jet. The high surface pressures induced by this collapse can damage, or clean, the boundary. Prior research has focused on simple boundary geometries, such as a solid surface. However, real-world geometries are far more complex, and these complexities affect the bubble dynamics. One such application is porous boundaries, such as those encountered when ultrasonically cleaning filters. In this work, we experimentally show how increasing porosity causes a decrease in bubble displacement during collapse and present a numerical model capable of predicting this behaviour.