

Abstract Submitted
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Dynamic of cavitation bubble in a flowing liquid with a pressure gradient¹ MARC TINGUELY, MOHAMED FARHAT, Ecole Polytechnique Federale de Lausanne — In the present study, a high energy pulsed laser is used to generate a millimetric cavitation bubble within a water flow over a symmetric hydrofoil. The bubble is initiated at different locations in the vicinity of the hydrofoil leading edge. A high speed camera is used to observe the motion of the bubble as it travels along the hydrofoil suction side. Besides the standoff parameter, we have found that the pressure gradient plays a major role on bubble dynamic and subsequent phenomena. For a specific initial location of the bubble, the micro-jet is no more directed towards the hydrofoil surface, as commonly observed in still water. In this case, we have also observed a spectacular behaviour of the cavity rebound, which migrates towards the solid surface despite of the outward direction of the micro-jet. This result differs from the behaviour of a bubble near a solid surface in water at rest or water flowing uniformly since the micro-jet is normally directed toward the solid.

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