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A mathematical study on the effects of fluid density on the impact cavity formation

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A cavity formed from an impact of a ball on a fluid surface will begin to collapse into two volumes: one wrapping around the ball and another rising to the surface. The experiment measuring the volume of the rising cavity suggested that it is the same across different liquid densities. This research presents a mathematical model to explain the phenomenon and its correspondence with the experimental results under a certain condition. The method used in this research is a good practice for applying fluid mechanics to explain a real-life phenomenon.

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