

# **Theoretical and Experimental Investigations for the Virtual Mass of a Taylor Bubble**

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**Abstract** - An exact theoretical analysis was presented for the virtual mass of the Taylor bubble. The present theoretical results were validated experimentally and proved the earlier results of Kendoush [1] were grossly approximate. An experiment was designed, installed, and tested for the purpose of obtaining the virtual mass by using a 3-D manufactured polymeric Taylor bubble.

**Keywords:** Slug flow, Taylor bubble, Virtual mass coefficient, Multiphase Flow, Capillary number, Transient Bubbly Flow