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## **Liquid-gas entrainment as a Landau-Levich Drag-in flow.**

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Landau-Levich problem in fluid mechanics is the study of the liquid film deposited on a moving plate when it drag-out liquid from a pool [1]. It is a canonical situation of crucial importance for all film coating processes. When a liquid jet plunges into a pool, and if the impact speed is sufficient, it can drag-in a thin air film along with it. This situation is analogous to the Landau-Levich problem wherein a moving liquid interface drags air into a pool of water. In fact, the quantity of air dragged-by a moving liquid interface is crucial for all plunging jet applications where air bubbles entrained during impact greatly influence industrial processes. We propose to investigate, using Direct Numerical Simulations, the viscous entrainment of a semi-infinite layer of gas into a liquid by a plunging jet.

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