Contribution ID: **23229** Type: **Paper**

A CFD simulation of bubble Burst at Free Surface

Abstract – In this paper, computational fluid dynamics modeling techniques to simulate the bubble bursting process and its ability to simulate the production of droplets for different bubble sizes are presented. A closed chamber is filled with fluid and air with the presence of bubbles in the fluid. The rising bubble eventually floats on the free surface forming a thin cap with a typical thickness of the order of 1 μm. To track the bubble cap, the mesh size must be reduced atleast 10 times.. In the current work, 2 droplets were obtained as a results of the bubble burst. This is encouraging numerical modeling results; however, the results are not sufficient for quantitative entrainment ratio analysis. The present work has emphasized the need for significantly higher computational power for a thorough analysis. The future work will focus on the simulation of single bubble, of various sizes, rising and bursting at the free surface. Each bubble size would correspond to a flow regime of discrete bubble column.

Speaker Bio

Primary author: MOHAMMED, Ouallal (University of Luxembourg)

Co-authors: SHAMS, Afaque (Mechanical Engineering); SIDDIQUI, Osman (Mechanical Engineering)

Presenter: MOHAMMED, Ouallal (University of Luxembourg)

Session Classification: Day 2- Research Pitch Competition - I