

LadHyX Seminar – June 23, 11:00, – LadHyX Library

Pierre-Antoine Maes  
(LadHyX)

**Water droplet impact on thin oil film and bubble entrapment: Three phases simulation**

Bubble entrapment is seen when a drop impacts onto a dry surface or one that is covered by a thin liquid film. The bubble is formed due to an air layer trapped between the drop and the surface during the impact process [1, 2]. However, to date it is not clear how presence of a liquid film may change the process of bubble entrapment. Numerical simulations (an adaptation of the Volume of Fluid method for two fluids in the Basilisk software [3]) is used to investigate the bubble entrapment dynamics when the drop impacts a thin immiscible film. We characterise the entrapped bubble by varying the impact parameters and liquid properties, starting by the oil viscosity. The effect of the thin liquid film on the bubble entrapment, is discussed by comparing it with the impact on a solid substrate or on the same (a miscible liquid thin film).

- 1 : S.T Thoroddsen et al, J. Fluid Mech. 545(-1), 203 (2005).
- 2 : C. Josserand and S.T Thoroddsen., Annual Review of Fluid Mech, 48(1), 365-391 (2016).
- 3 : S. Popinet, J.Computational Physics, 228(16), 5838–5866, (2009)