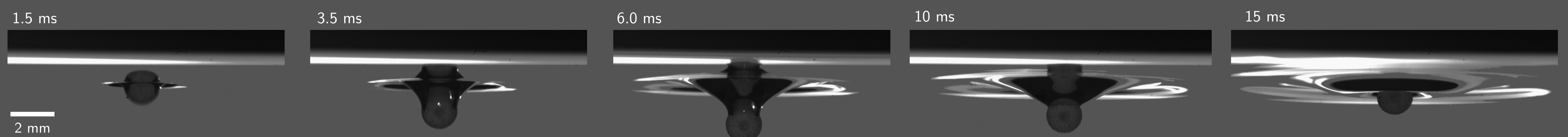


Particle deposition on an interface: trapping vs sinking

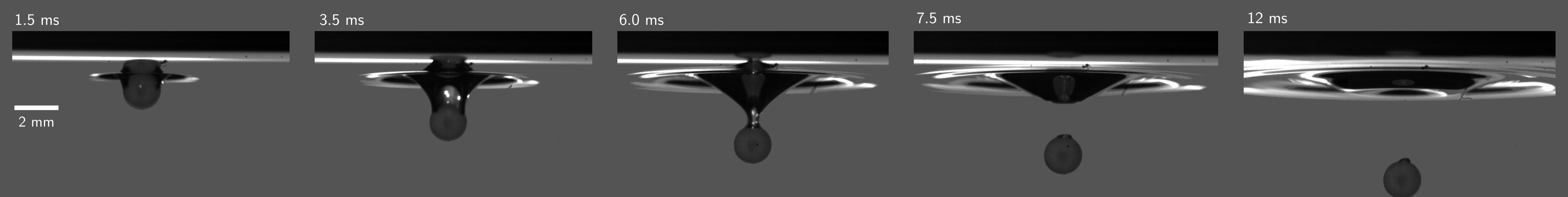
E. Dressaire¹ & A. Sauret²

A particle that impacts on an air/liquid interface can either get trapped or sink into the fluid. The capture of a single particle at the interface depends on different parameters including the impact velocity, the density of the particle and the viscosity of the fluid. However, various situations involve the impact of multiple objects on the interface. Upon impact, the sinking or floating of the particles results from a collective behavior that depends on the distance between the particles and the time interval between consecutive impacts. Interestingly, the impact of several particles can lead to the two behaviors simultaneously, some particles sinking, while others float.

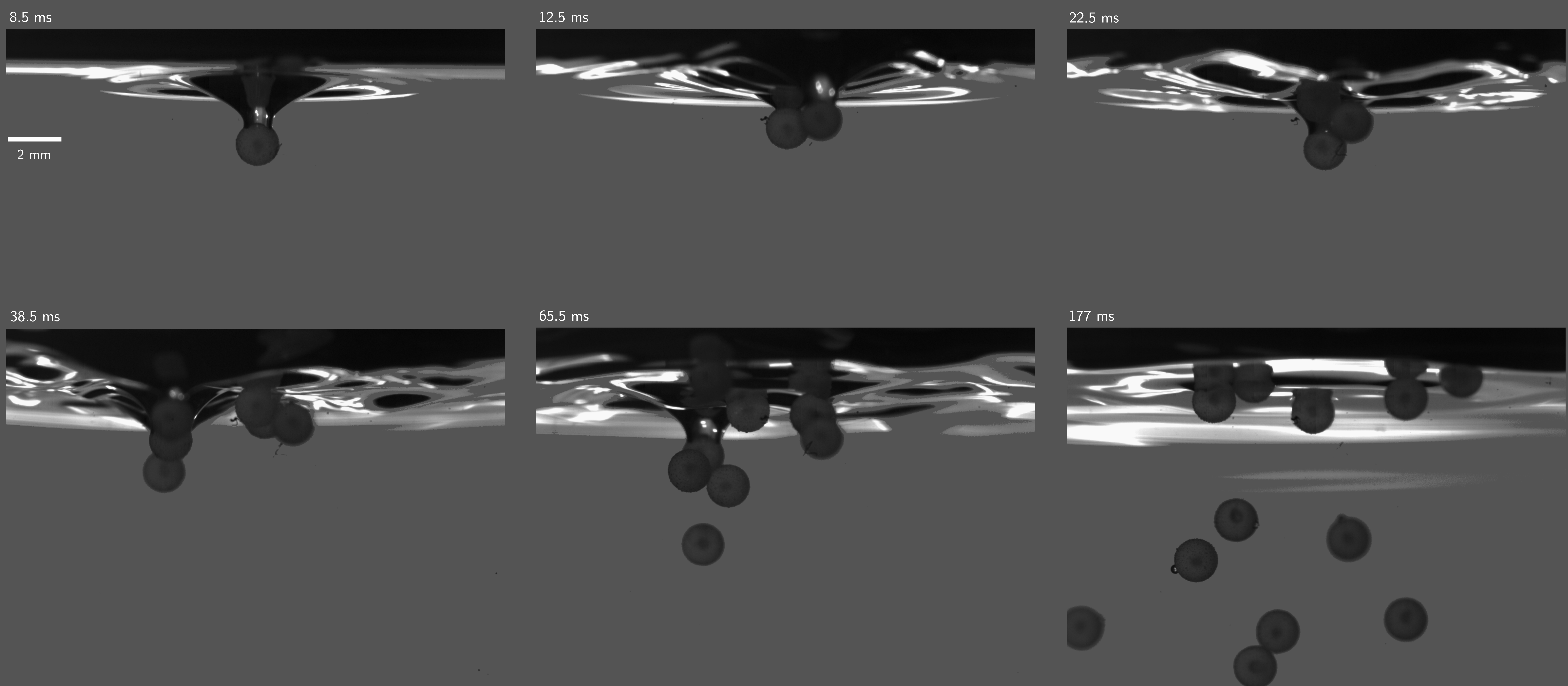
Impact and floating of one particle at $V < V_c$



Impact and sinking of one particle at $V > V_c$



However, the entry of a large number of particles modifies the behavior at the interface, trapping or sinking.



¹ Dept. of Mechanical and Aerospace Engineering, NYU Tandon School of Engineering, USA

² SVI, CNRS & Saint-Gobain, France

dressaire@nyu.edu / <http://engineering.nyu.edu/piflab/>