

Bubble under field : similarities and differences

Deformations undergone by a droplet submitted to an electrical force have been recently studied by Beroz et al. They propose a law based on the equilibrium between capillarity and electrical force. On the other hand, Ikkala et al. focus on the dynamics of a ferrofluids droplet resting on a superhydrophobic surfaces under a magnetic field. They observe the division of a droplet in two smaller ones. Both works show the current interest for the manipulation and the deformation of droplet. Here, we propose to compare with bubbles. We propose to characterize the shape of the bubble submitted to a electric and a magnetic field. Both applied fields lead to similar deformations of the bubble. In particular, we characterize the shape variations of the surface of the hemispherical bubble immersed in the uniform electric field of a plan capacitor. We also observe those variations for a ferrofluids hemispherical bubble under a uniform magnetic field.