

## Deformations of soap bubbles in a uniform electric field

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The study of the deformations undergone by a soap bubble submitted to an electrical force began with Taylor and Wilson (C.T.R. Wilson and G.I Taylor, The bursting of soap-bubbles in a uniform electric field, *Math. Proc. Cambridge*, in vol. 22, pp. 728-730, 1925) and the observation of the so-called Taylor's cones. Beyond these particular structures, few studies analyzed the bubble deformations. For example, what is the link between the deformations and the electrical force ? Or, how do charges move in the thin soap film formed by the bubble ? To answer those questions, we characterize the shape variations of the surface of the bubble immersed in the uniform electric field of a plan capacitor. In particular, our study focuses on hemispherical bubbles lying on a bottom electrode of a capacitor. For this experiment, we are able to find a law between the deformation of the bubble and the potential applied between the two electrodes. This law is based on the equilibrium of pressure at the top of the bubble.

