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**Surface tension profiles in vertical soap films: an intrusive measurement** NICOLAS ADAMI, STÉPHANE DORBOLO, HERVÉ CAPS, Université de Liège-GRASP, GRASP TEAM — Soap films are known to be the basic constituent of complex fluid objects such as bubbles and foams. In order for their weight to be counterbalanced, those objects need to exhibit vertical surface tension profiles, which can only exist due to the presence of surfactant molecules at their interfaces. We here present a method that aims to probe vertical soap films surface tension profiles by use of elasto-capillary deformations. Both cases of free-draining and entertained soap films are investigated, leading the spatio-temporal behavior of the surface tension. We show that this behavior is highly dependent on the nature of the surfactant used to create soap films, emphasizing the influence of the physico-chemistry on the global behavior of the system. We propose order of magnitude calculations, which are in good agreement with experimental data.

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