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Marginal Pinching in a Bubble Sitting on a Solid Surface GUILLAUME BERTELOOT, PIROUZ KAVEHPOUR, POORIAH SHARIF-KASHANI, UCLA — While the shape of a bubble is widely understood to be dictated by a competition between film elasticity and Laplace pressure induced by the curvature of the latter, the shape of the liquid film in contact with the solid surface has not been studied. Using fluorescence microscopy techniques, we show that the inner liquid/air interface exhibits a dip. This can be related to marginal pinching, and simulations shows good agreement between theory and experiment. This dip depends on the surfactant used for bubble formation, and the height difference increases with time. This feature can be of importance, because bubbles can be seen as a base unit for foams, which are widely used for medical as well as industrial purposes, such as enhanced oil recovery. For those applications, the interaction between the foam and the substrate is crucial, as the quality of the foam hence the efficiency of the process depends on it. The study of foams can be applied to bubbles as one can see the vicinity of the contact line as part of a Plateau border.

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