# Capillary Surfaces

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**Abstract**

This will be largely an expository lecture on modern developments for studying equilibrium capillary surface interfaces; it will however include some new material on floating bodies. The emphasis will be on predictions of idiosyncratic behavior imposed by the particular nonlinearity in the governing equations, and on ensuing experiments that confirmed the predictions physically. These predictions escaped notice in earlier literature, presumably because – despite being the governing features of the behavior – they seem not accessible to the kinds of linearization that are classically used for approximating physical phenomena. A wealth of new discoveries based on the explicit nonlinearities has appeared during the past half-century; I will describe a few that are indicative of main developments. Some of this material may be useful as background for the related and more specific lecture by Danzhu Shi, concerning the remarkable range of differing behaviors that can occur at edges formed by intersecting boundary walls.