Surface Tension, Droplets, and Contact Lines

Slides for Lecture I: Free Surfaces

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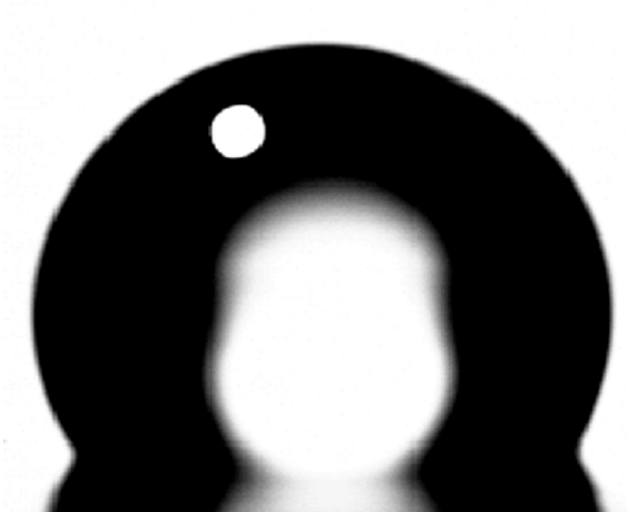
Boulder Condensed Matter Summer School 2015

I.1 Bubble and balloon.

National History Museum, UK

1hqwallpaper.mobi

I.2 Two drops of water



10^{-4} m

10^{1} m

I.3 Meniscus

Hu and Bush, Science 2005

I.4 Capillary Rise

Walter Wick *A Drop of Water* (downloaded from hydrologie.org)

I.5 Capillary Adhesion

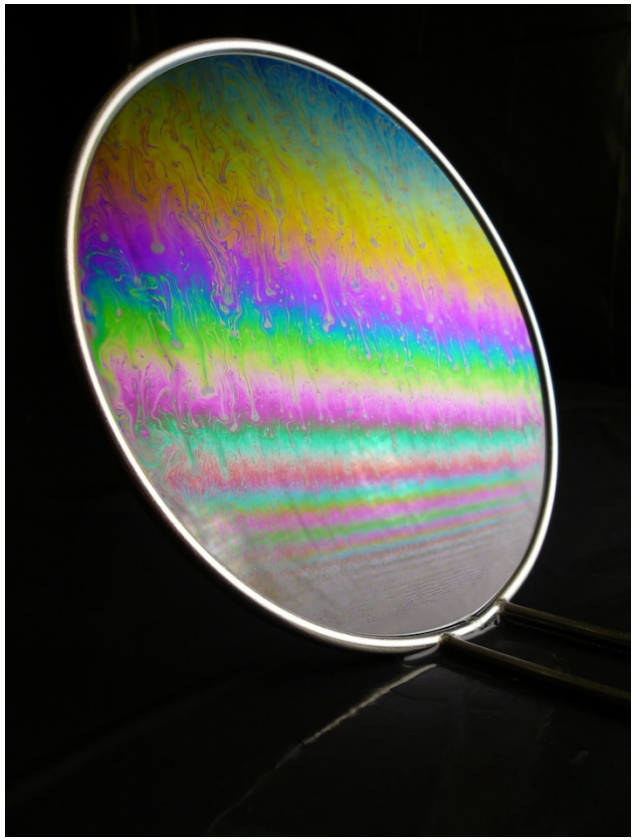
http://wahsegavalleyfarm.typepad.com/

Bico et al Nature 2004

Array of equally space flexible rods dipped in liquid

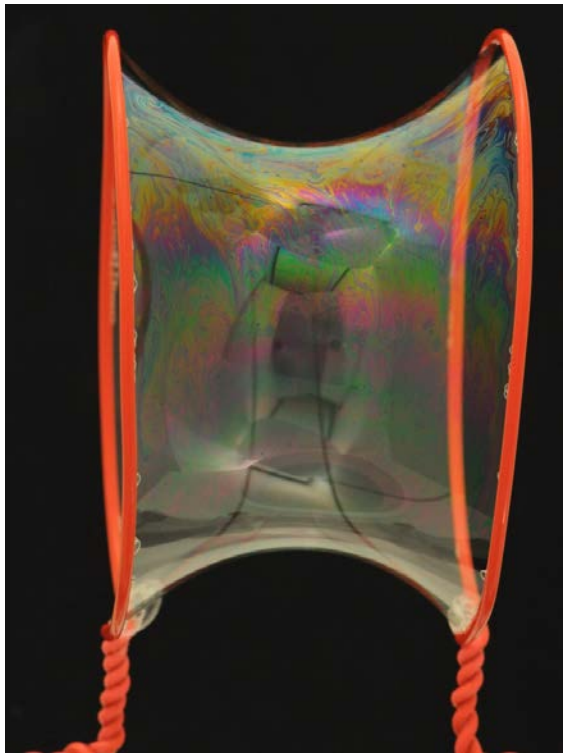
I.6 Minimal Surfaces with Soap Films

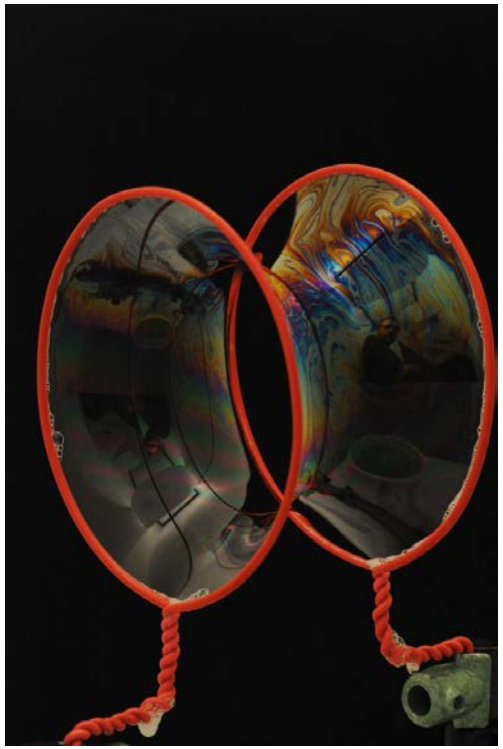
flat



Soapbubble.dk

catenoid

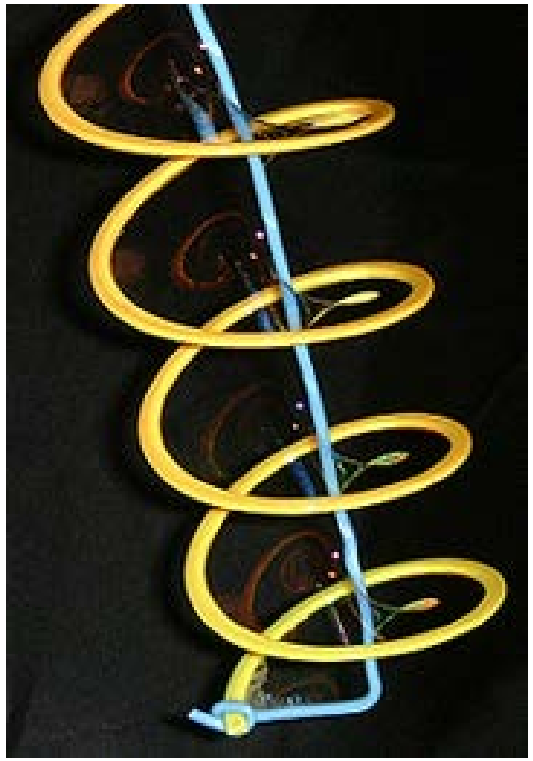




Soapbubble.dk

I.7 Minimal Surfaces with Soap Films (cont)

helicoid



Wikipedia “minimal surfaces”

gyroid

Wolfram mathworld

See “Flight Through the Gyroid by Schoder-Turk”

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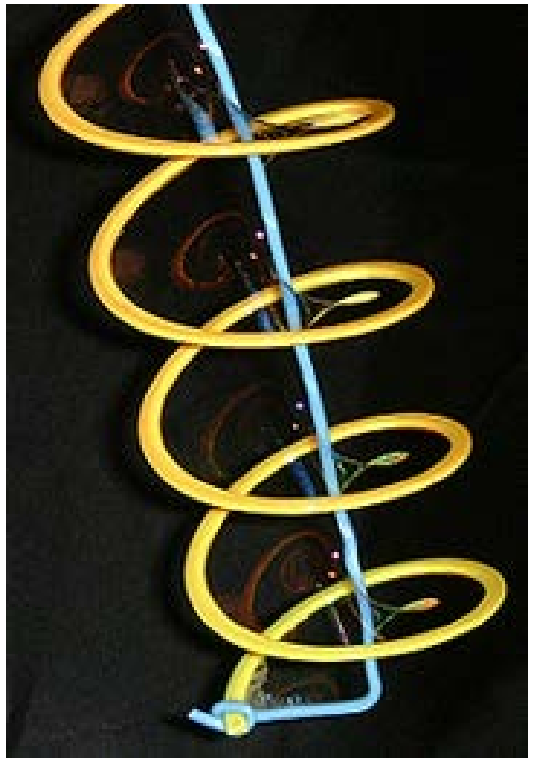
helicoid



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