

## Building giant vesicles of phospholipids (André Schroder, ICS)

Concentrated phospholipids in an organic solvent tend to orient and self-assemble into bilayers thanks to their amphiphilic structure and cylinder-like shape. When the solvent evaporates after spreading of such solution droplet onto a flat surface, these bilayers superimpose, forming a disordered stack of oriented lipids that, when re-hydrated, swells rapidly, the bilayers detaching from one another. Due to their physical properties (thickness of circa 4nm, bending modulus of circa  $10 k_B T$ ), these hydrated bilayers exhibit thermal fluctuations and strong bending, finally closing into capsules named often as vesicles or liposomes. We will learn how to build and observe such vesicles, using various techniques that are common in the field of science that considers these individual bilayers as bio-mimetic models for cell membranes.

Measuring surface