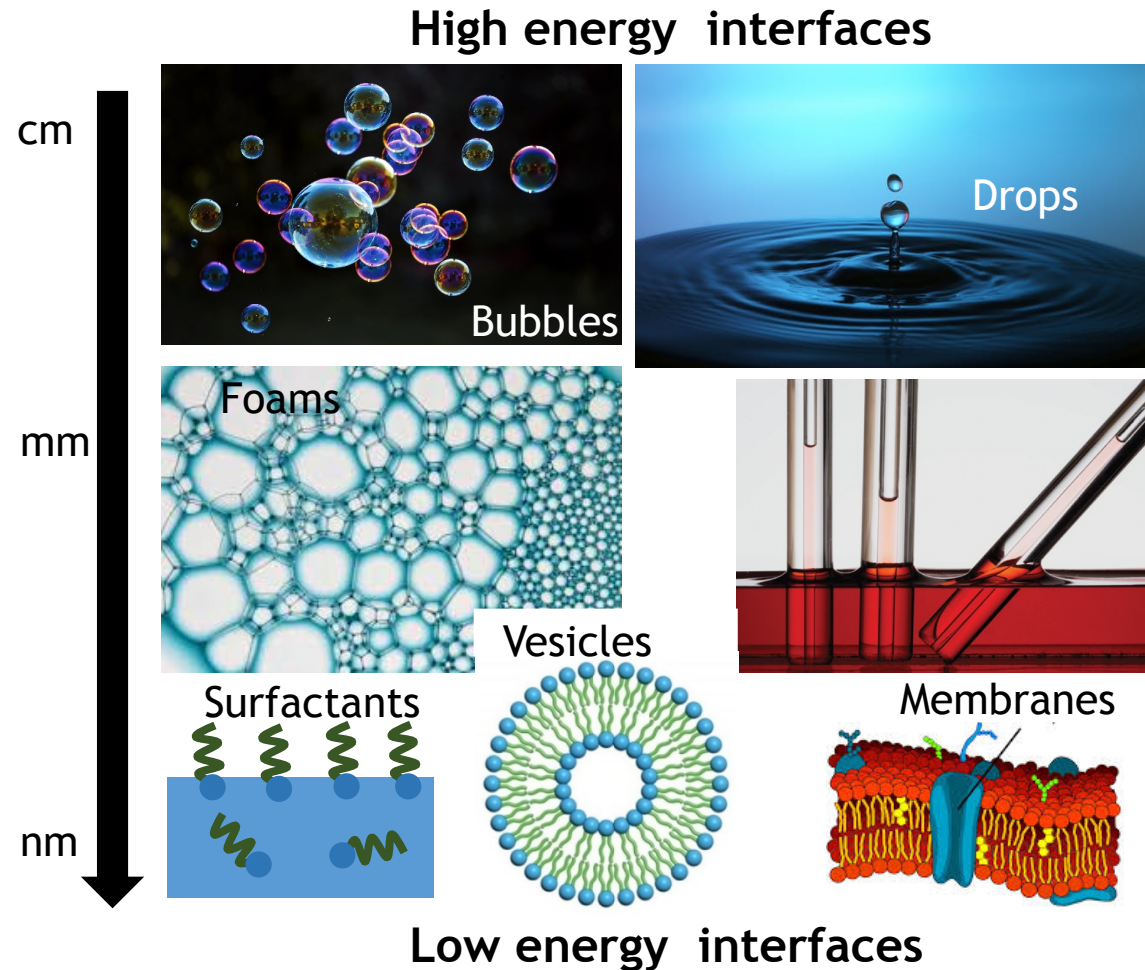
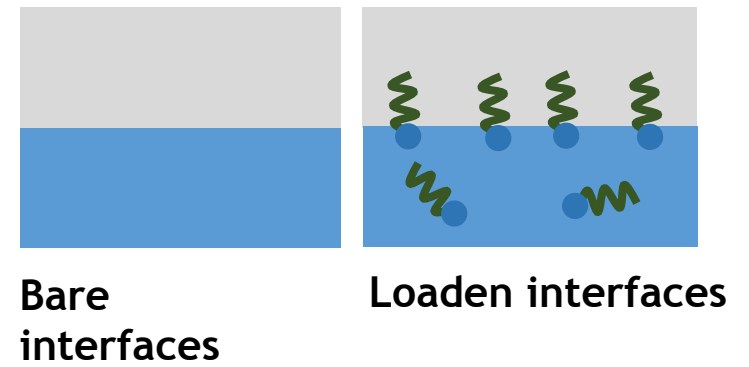
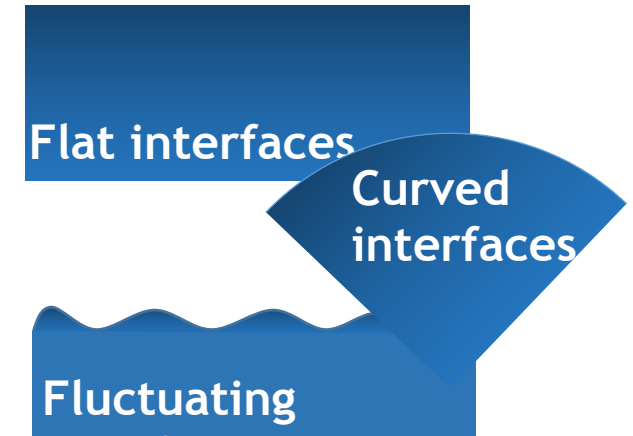


# Physics of interfaces

Thierry Charitat & Wiebke Drenckhan



Many physical phenomena are controlled by interfaces



How to describe their geometry? How to capture their physical properties?  
What are the consequence? How to describe their dynamics?

# Physics of interfaces

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## Short summary of course content

### **I-Thermodynamics of surfaces and interfaces**

- Simple and complex interfaces.
- Phase transitions in 2d.

### **II-High Energy Interfaces**

- Curved surface: minimal surfaces, consequences of interfacial energy.
- Experimental techniques for interfacial tension characterisation.

### **III- Low Energy Interfaces - Microemulsion-Membranes**

- To ultra-low surface tension: spontaneous emulsification (de Gennes model); Lipid membranes, vesicles.
- Experimental realisation.

### **IV- Dynamics of interfaces: thermal fluctuations**

- Fluctuations of a simple interface: capillary length ....
- Effect of fluctuations: renormalisation of elastic constants;
- Measurement of fluctuation spectra.