

## **Topic E: Surface Chemistry, Thin Liquid Films, and Stability**

### **“FOAM STABILITY FROM THE POINT OF VIEW OF A SINGLE FOAM FILM”**

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Foam films are one of the main building blocks of the foams together with the Plateau borders. Foam film stability controls the coalescence processes in the foams. Their permeability to gases governs the rate of Ostwald ripening. Present talk summarises results from experimental and theoretical studies on water soluble surfactant stabilised foam films or films made by suspensions of nano sized particles in presence of surfactants.

The talk overviews the mechanisms of film rupture at different states of its formation. A relation to the surface forces acting between the film surfaces is discussed. The experimental observation is compared to the elastic properties of single adsorbed surfactant layers on air/aqueous solution interface. Results on the dynamics of film thinning are presented. The influence of the bulk properties and the interfacial properties on the thinning process is discussed. Details of the features which govern the permeability of the films to gases are summarised. The influences of the properties of the different layers which build the film (adsorbed surfactant and central aqueous core) on the film permeability are shown.

Special attention is paid to the change of the film properties when the transition from common film to NBF occurs. The influence on the film stability and permeability of surfactant concentration, external pressure and temperature is shown.