

Structures and behaviours of solid-liquid type colloidal systems

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The colloidal systems (polymers, copolymers, latexes, micelles, emulsions, microemulsions, copolymer micelles, mineral oxides and organic pigments, asphaltenes, bitumen particles, etc.) are involved in various industrial applications, such as plastics, rubber, medical and agriculture fields, paints, cosmetics, pharmaceutical packaging, foodstuffs and petroleum industries and petroleum recovery, etc.

The course covers a variety of topics in colloidal sciences including electrical aspects of the solid-liquid interface (electrical double layer, zeta potential, DLVO theory), stability of the solid-liquid dispersions by polymers and copolymers (steric and electro-steric effects), contact angle, wetting of solid surfaces by liquids, adhesion, lotus effect, flotation, aggregation and flocculation, detergency, surfactants, self-assembly, micelles and vesicles. Some solid-liquid surface characterization methods will be introduced such as Dynamic Light Scattering (DLS), Small Angle X-Ray and Neutron Scatterings (SAXS and SANS), Atomic Force Microscopy (AFM) and Microelectrophoresis.

Main Topics

- 1: Introduction to colloidal systems
- 2: Electrical properties of colloids. Electrokinetic phenomena
- 3: DLVO theory, stability, flocculation and sedimentation of colloidal systems
- 4: Colloid stability by polymer or copolymer adsorption at solid-liquid interface (Steric and electrosteric effects).
- 5: Characterization methods of colloidal systems.

Place: in the Auditorium Ipcms bâtiment 69 – Campus de Cronenbourg

The 13 April: in the room 70 in the Ipcms – Campus de Cronenbourg

Time: from 2 pm to 6 pm, 16 March; 23 March; 6 April and 13 April 2018