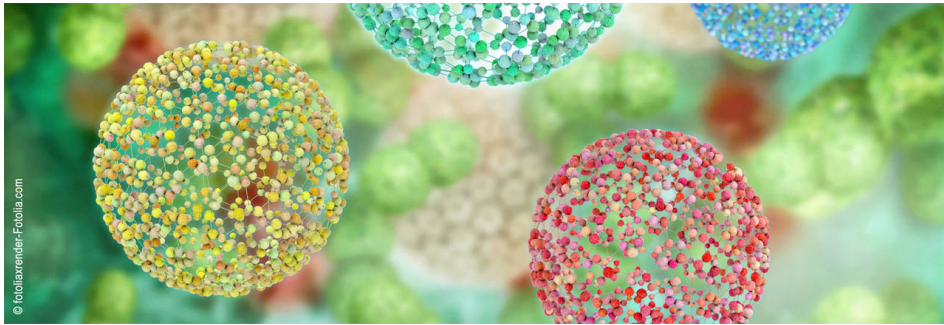


Thermodynamics and energetics of soft matter systems



Report of Contributions

Contribution ID: 1

Type: **oral**

Lecture 1: Introduction to colloid and interface Science

Tuesday, 24 July 2018 14:00 (1h 30m)

Introduction to colloid and interface science & its applications. Basic concepts. Van der Waals interactions, the electric double layer, and DLVO theory. Further interaction mechanisms (steric, depletion).

Presenter: Dr SCHNECK, Emanuel

Contribution ID: 2

Type: **oral**

Lecture 2: Fundamentals of self-assembly processes

Tuesday, 24 July 2018 16:00 (1h 30m)

Basic Principles in Supra- molecular Chemistry. Non- Covalent Interactions and Host- Guest Complexes. Free energy landscape, polydispersity, cooperativity.

Presenter: Prof. SCHALLEY, Christoph

Contribution ID: 3

Type: **not specified**

Lecture 3: Methods in Calorimetry and Volumetry

Wednesday, 25 July 2018 09:00 (1h 30m)

Free energy and its derivatives: the partial molar quantities. Relevance in colloidal systems and methods to access them. Enthalpy changes in supramolecular aggregates: van't Hoff vs direct methods. Introduction and experimental tips in calorimetry and volumetry. Isothermal titration calorimetry: equilibrium and kinetics. Prediction abilities and case studies.

Presenter: Dr LAZZARA, Giuseppe

Contribution ID: 4

Type: **oral**

Lecture 4: Methods to probe energetics in biological systems

Wednesday, 25 July 2018 10:45 (1h 30m)

Methods to probe the energetics, structure and conformational dynamics of biomolecular systems
- Introduction to cell membranes, model biomembranes, lipid phase transitions. Proteins and their stability, free energy landscape, folding kinetics, interactions. Methods to probe the thermodynamics, conformation, dynamics and interactions of biomolecules.

Presenter: Prof. WINTER, Roland

Contribution ID: 5

Type: **oral**

Lecture 5: Physics of macromolecular systems

Thursday, 26 July 2018 09:00 (1h 30m)

Conformation of polymer chains, chain statistics, polymer solutions and blends, thermodynamics, phase separation, mechanical properties.

Presenter: Dr OBERDISSE, Julian

Contribution ID: 6

Type: **oral**

Lecture 6: Thermodynamics of interfaces

Thursday, 26 July 2018 10:45 (1h 30m)

Thermodynamics of interfaces and adsorption, surface tension, contact angle, wetting. Interaction between surfaces and stabilisation mechanisms (foams, emulsions).

Presenter: Dr STOCCO, Antonio

Contribution ID: 7

Type: **oral**

Lecture 7: Solvation and Solubilization

Thursday, 26 July 2018 14:00 (1h 30m)

Ideal and real mixtures and solutions. Molecules and macromolecules in solution. Free energy of solvation, chemical potentials, activity coefficients: experimental and theoretical approaches. A microscopic view from homogeneous to structured solutions: osmolytes, hydrotropes, surfactants. Concepts from Kirkwood-Buff theory. Solubilization in micro-structured solvents.

Presenter: Dr HORINEK, Dominik