

~~Special Polymer Physics Seminar ~~

Professor Federico Bordi

Dipartimento di Fisica, Universita di Roma 'La Sapienza' and Istituto Nazionale per la Fisica della Materia (INFN CRS_SOFT), Unita di Roma, Italy

10:00 AM Tuesday
May 10th, 2011
301 Steidle Bldg.

A phenomenological model for the polyelectrolyte induced aggregation of charged colloids. A system with a potential for biotechnological applications.

Different charged colloidal particles have been shown to be able to self-assemble, when mixed in an aqueous solvent with oppositely charged linear polyelectrolytes. In proper conditions they form long-lived finite-size mesoscopic aggregates, whose size depends on the polyelectrolyte/particle charge ratio in a rather unexpected way. The mechanism underlying the formation of this cluster phase is still controversial. However, the interesting phenomenology shown by these systems promises a high potential for biotechnological applications, particularly when the primary colloidal particles are biocompatible lipid vesicles. This talk will discuss a phenomenological model of the aggregation and possible applications of these systems as multi-compartment vectors for the simultaneous intra-cellular delivery of different pharmacologically active substances.