

CBC SEMINAR ANNOUNCEMENT



Professor Lingyun Zhang
Visiting Associate Professor

Structural Transition in Soft and Biological Systems

The experimental and theoretical progresses in the structural transition of soft and biological systems will be reviewed. With the aid of several examples, the mechanism of phase transition is to be explored. First of all a spin dynamic algorithm was developed to find a stable orientation configuration for an arbitrary alignment of the magnetic dipole moment, which accurately predicted the lattice constant variation as a function of the magnetic field, yielded excellent agreement with experimental results, and illustrated the formed reason of structural transition in magnetic colloidal system. Next phase behavior and transition of diblock copolymer in selective solvents were studied using self-consistent field theory, the detailed comparisons with the experimental phase diagrams including lamellar, cylindrical and spherical structures have been presented and the exact FCC-BCC structural phase transition temperatures in moderately and strongly selective solvents are calculated. Then a method of double strand DNA denaturation was proposed by employing spFRET, where it is demonstrated that both weak laser and fast impulse force determine the DNA melting, whose potential application is that the weak laser can pinpoint to control DNA denaturation process. Finally some new results, such as the statistical properties of biopolymer in the geometric confinement as well as the interaction between DNA and anti-cancer drug, are to be introduced.

Date:	21st December 2012 (Friday)
Time:	11:00am – 12:30pm
Venue:	NTU SPMS CBC Building Level 2, Conference Room
Host:	Asst Professor Hajime Hirao