Course Schedule of TIGP Program

Semester: Fall, 2008

Course: Advanced Physical Chemistry (III)-Computational Biophysics and Nano Materials

高等物理化學(III)-生物物理與奈米材料的計算

Time: 9:1 0~12:00 am, Thursday

Room: 311 IAM

Elective, credit: 3

Course No.: TIGP727300

Course starts: 9/25/2008   Final examination starts: 1/12/2009

Speaker	Prof. Dah-Yen Yang 楊大衍教授
Class Outline	A. Equilibrium Statistical Mechanics: partition function B. Non-equilibrium Statistical Mechanics: Classical Brownian motion C. Computer Simulation: classical and quantum D. Application to biophysics and material science: bio-molecule and graphene
Introduction	This course starts from learning how to construct partition function, thermodynamic quantities. To study the non-equilibrium statistical mechanics aiming to apply to biophysics, we explore the classical Brownian motion. We then show the methods for bio-molecular molecular dynamics simulation and ab-initio molecular dynamics simulation for material science. For further application, we explain some basics of bio-molecule and the fundamental solid state physics such as space group, its representation and band structure etc. We end this course with applications to grapheme properties.
Grading	A. Presentation B. Brief report C. Homework
Textbook	A. D.A. McQuarrie, "Statistical Mechanics". B. Lecture Notes by Dah-Yen Yang