

Course Schedule of MST Program

Semester: Spring, 2009

Course: Chemical Kinetics and Molecular Dynamics 化學動力學與分子動態學

Time: W8W9Wa(Wednesday 2:10~5:00 pm)

Room: 311 IAM

Elective, credit: 3

Course No.: TIGP728200

Date	lecturer	Date	lecturer
2/25	Prof. Chi-Kung Ni	4/22	Prof. Kopin Liu
3/4	Prof. Chi-Kung Ni	4/29	Prof. Kopin Liu
3/11	Prof. Chi-Kung Ni	5/6	Prof. Ta-Chau Chang
3/18	Prof. Chi-Kung Ni	5/13	Prof. Ta-Chau Chang
3/25	Prof. Kopin Liu	5/20	Prof. Ta-Chau Chang
4/1	Prof. Kopin Liu	5/27	Prof. Ta-Chau Chang
4/8	Prof. Kopin Liu	6/3	Prof. Ta-Chau Chang
4/15	Prof. Kopin Liu		

Speaker	Part 1 (Week 1-4) Prof. Chi-Kung Ni 倪其焜教授
Class Outline	Chemical kinetics 1. Kinetic theory of gases a. velocity distribution b. collision frequency, mean free path 2. The rates of chemical reactions a. differential and integrated rate laws b. reaction mechanisms c. homogeneous catalysis d. chain reaction 3. Theory of chemical reactions a. potential energy surface b. simple collision theory c. transition state theory d. isotope effects
Textbook	“Chemical kinetics and molecular Dynamics” P. Houston McGraw-Hill

Speaker	Part 2 (Week 5-week 10) Prof. Kopin Liu 劉國平教授
Class Outline	Gas phase reaction dynamics

Introduction	Concepts of molecular collision models; Transition State Theory; energy disposal and energy requirement; photochemical processes; unimolecular dissociation (RRKM theory) etc. The aim is to provide the ways of visualizing how a chemical reaction takes place at the molecular level.
Grading	Homeworks Quiz/examination
Textbook	1. "Chemical kinetics and molecular Dynamics" P. Houston McGraw-Hill 2. Lecture Notes

Speaker	Part 3 (Week 11-week 15) Prof. Ta-Chau Chang 張大釗教授
Class Outline	Kinetics and dynamics of condensed matter
Textbook	Lecture Notes