103 學年第 1 學期 光化學原理 Principle of Photochemistry 課程綱要

課程名稱：（中文）光化學原理 （英文）Principle of Photochemistry				開課單位	分子碩
				永久課號	IMO5112
授課教師： 林聖賢					
學分數	3	必/選修	選修	開課年級	*
先修科目或先備能力： General chemistry and part of physical chemistry					
課程概述與目標： Provide the students the basic knowledge of molecular spectroscopy and photochemistry and the skills of quantum chemistry methods to perform the first-principle calculation of molecular spectra and photochemical processes.					
教科書（請註明書名、作者、出版社、出版年等資訊）	K. K. Liang, R. Chang, M. Hayashi, S. H. Lin “Principle of Molecular Spectroscopy and Photochemistry”				

課程大綱		分配時數				備註
單元主題	內容綱要	講授	示範	習作	其他	
Molecular Luminescence and Elementary Processes	1.Classical mechanics 2.Molecular motion 3.Quantum mechanics 4.Solving the time-independent SchrOdinger equation					
Molecular spectroscopy and photochemistry	1.Solution of the time-independent SchrOdinger equation 2.Fermi golden rule 3.Adiabatic approximation of its application 4.Elementary processes					

教學要點概述：

1.學期作業、考試、評量
1.homework：Takehome project
2.exam/quiz：Both exam and quiz

3.grading method：Based on the scores of two exams in the semester 4.teaching knowledge methods
2.教學方法及教學相關配合事項(如助教、網站或圖書及資料庫等)

	排定時間	地點	連絡方式
師生晤談	From 9 to 12, every Friday.	Room 201, SB ll.	by email appointments

每週進度表

週次	上課日期	課程進度、內容、主題
1		Introduction
2		Time-dependent Perturbation Method
3		Time-dependent Perturbation Method
4		Born-Oppenheimer Approximation
5		Born-Oppenheimer Approximation
6		Motion of Diatomic Moleculaes
7		Motion of Diatomic Moleculaes
8		Principles of Molecular Spectroscopy
9		Principles of Molecular Spectroscopy
10		Absorption Spectra in Dense Media
11		Absorption Spectra in Dense Media
12		Non-adiabatic Rate Processes
13		Non-adiabatic Rate Processes
14		Density Matrix Method
15		Density Matrix Method
16		Master Equations for Isolated Systems
17		Theoretical Treatments of Quantum Beat

備註：

1. 其他欄包含參訪、專題演講等活動。
2. 請同學遵守智慧財產權觀念及勿使用不法影印教科書。

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