

105 學年第 2 學期 進階光譜學 Advanced Spectroscopy 課程綱要

課程名稱：(中文) 進階光譜學		開課單位	分子碩			
(英文) Advanced Spectroscopy		永久課號	IMO5128			
授課教師：遠藤泰樹						
學分數	3	必/選修	選修	開課年級	*	
先修科目或先備能力：						
Basic knowledge of quantum mechanics or quantum chemistry						
課程概述與目標：						
Energy level structures of relatively simple molecules, rotation, vibration and electronic motions, are discussed. Spectroscopic methods for the investigations of these energy level structures are given. A few advanced features are discussed.						
教科書 (請註明書名、作者、出版社、出版年等資訊)	(1) P. Atkins and J. de Pauls, "Physical Chemistry", Oxford Univ. Press. (2) P. F. Bernath, "Spectra of Atoms and Molecules", Oxford Univ. Press.					
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	
教學要點概述：						
1. 學期作業、考試、評量 成績考評方式: 以百分考評。 Reports for each chapter. 30% Final exam. 70%						
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) Prepare printed materials						
師生晤談	排定時間	地點		連絡方式		
	Wednesday, 16:00-17:00	Office : Science II, Rm 125		Tel : 31518 e-mail: endo@nctu.edu.tw		
每週進度表						
週次	上課日期	課程進度、內容、主題				
1	2017/2/15	General introduction				
2	2017/2/22	Diatomic molecules; rotation and vibration				
3	2017/3/1	Selection rules and general treatments				

4	2017/3/8	Their spectra and experimental observations
5	2017/3/15	Polyatomic molecules; rotation and angular momenta
6	2017/3/22	Their energy levels
7	2017/3/29	Nuclear spin statistics. Radio astronomy
8	2017/4/5	Holiday
9	2017/4/12	Polyatomic molecules; vibrational motions
10	2017/4/19	Group theory
11	2017/4/26	GF-matrix method, selection rules, and spectra
12	2017/5/3	Large amplitude motions, molecular complexes etc.
13	2017/5/10	Diatomic molecules; electronic states
14	2017/5/17	Selection rules, spectra and spontaneous emission
15	2017/5/24	Rotational energy levels of open-shell molecules
16	2017/5/31	Polyatomic molecules; electronic states and symmetry
17	2017/6/7	Selection rules, spectra, and dynamics in the excited states
18	2017/6/14	Final exam.

※ 請同學遵守智慧財產權觀念及勿使用不法影印教科書。

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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