

Molecular Spectroscopy Spring-Summer Semester 2015

Class Time: Saturday 8:00 - 11:00
Room: 509 Building 8

Instructor: Dr. Stefan Franzen
Office Hours: By Appointment

Texts: Molecular Spectroscopy, Jeanne McHale, Prentice Hall
and Chemical Spectroscopy, Stefan Franzen (pdf document)

Website: http://www4.ncsu.edu/~franzen/public_html/CH795Z/index.html

Examinations: There will be one mid-term and a final exam.

Homework: There will be 7 problem sets.

Date	Topic	Read	
May 9	Overview of Spectroscopy	Chap 1. Appendix A	
	Review of Particle in a box	Chap 2.	
	Hydrogen Atom	Chap 3.	
	Harmonic Oscillator	Chap.5	
May 16	Group theory in spectroscopy	Chap.4	
	Applications of group theory	Chap.4	
May 23	Time-dependent quantum mechanics	Chap 9,10	
	Computational Introduction	Chap 8	
	Spectral Lineshapes	Chap 13	
	Fermi golden rule	Chap 11	
May 30	DFT calculations of spectra	Chap 8	
	Time-correlation function method	Chap 12	
	Applications of the time correlator TIMETHERM	Chap 12	
June 6	Raman spectroscopy –Introduction	Chap 15	
	Resonance Raman spectroscopy	Chap 16	
	Computational methods	Chap 16	
June 13	Solvchromism/Dielectric Prop.	Chap 14	
	Surfaces/Fresnel equations	Chap 17	
June 20	Lasers	Chap 18	
	Plasmonics	Chap 17	
June 27	Heme proteins	Chap 19	
	Photosynthesis	Chap 20	

Grades will be based as follows:

Problem sets	50%
Mid-Term Exam	20%
Final Exam	30%

There will be +/- grading.