Syllabus - Chem 6492 Spring 2009

Understanding molecular spectra by applying time-dependent quantum mechanics.

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Lecture: 10-11 MWF G021

Office Hours: TBA

Website: http://web.chemistry.gatech.edu/~brown/6492.htm

Topics

Introduction to Spectroscopy	
Electromagnetic Waves	*classical EM and photons*
1D and 2D NMR	*density matrix, time-dependent perturbation theory (first order)*
Atomic Spectra	*spherical symmetry and angular momentum, time-dependent perturbation theory (higher orders), Fermi's golden rule*
IR and Vibronic Spectra	*molecular symmetry, Jahn-Teller effect*
Electronic Spectra	*term symbols, selection rules, Jablonski diagrams*
Pump-Probe	*time domain, two photon experiments*
Special Topics	*quantum dots, 2D IR, SERS, etc.*

Requirements and Grading Scheme

A > 90 % B > 70 % C > 50 %

Homework: 50% Test 1: 20% Test 2: 20% Test 3: 30% (one test is dropped)

Pass/Fail students need to take both tests and the final and receive an overall passing grade. Auditors are required to take both tests.