Instructor: Zhi-Feng Huang, 356 Physics Building
Tel: (313) 577 2791; Email: huang@physics.wayne.edu
Office hours: Tuesday 3:00 pm – 5:00 pm, or by arrangement

Class time and location: T Th 1:25 pm – 2:50 pm, 177 Physics Building

Prerequisite: PHY 6300/6400 (Quantum Physics I)


Homework: Put in Blackboard; due 1–2 weeks after assigned, and collected in class;
10% penalty for late solutions (only accepted no later than 1 week after the due date);
The lowest homework score will be dropped.

Exams: Two exams, to be announced more than one week in advance;
Final: Presentations, topics to be arranged.

Grading: 1st exam: 20%
2nd exam: 20%
Final: 35%
Homework and class participation: 25%

Course content

This course discusses the application of Quantum Mechanics, including

● One-electron atoms: The real Hydrogen atom, Spin, fine structure, Zeeman effect, hyperfine structure; The Van der Waals interaction between atoms.
● Multielectron atoms and molecules; Helium, Hydrogen molecule ion.
● Transitions, emissions, laser, and magnetic resonance.
● Many-particle systems: Nuclear systems; Solids, band structure, Quantum dots.
● Quantum Statistics; Fermi-Dirac gases and Bose-Einstein condensation.