

Introduction to Atomic and Molecular Physics

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Time: Thursday 6:30pm – 9:20pm

Room: Rm 501, Physics building.

Suggested textbooks:

(1) *The physics of Atoms and Quanta* (Haken&Wolf)

(2) *Atomic Physics* (Foot)

Grades: homework 60%; final report 30%; Attendance 10%;

Topics:

1. Introduction to atomic and molecular physics (原子分子物理簡介)
2. Atomic structure (原子結構)
3. Atoms in external fields (原子結構在磁場和電場中的變化)
4. Photon-atom interactions (光子和原子的交互作用)
5. Laser cooling and trapping atoms (冷原子的實驗技術介紹)
6. Ultracold collisions (超冷原子的碰撞物理)
7. Bose-Einstein condensation (玻色-愛因斯坦凝結)
8. Degenerate Fermi gas (量子費米氣體)
9. Ion trap and cold ions (冷離子的實驗技術介紹)
10. Ion trap quantum computing (離子阱量子計算)