

2023 Spring Semester

光學二 Optics II

Instructor: 王立邦 Li-Bang Wang, lbwang@phys.nthu.edu.tw

Office: Room 412 at physics building, Tel: 03-5742956, 0921-298321

Time: Tuesday and Thursday 10:10-11:25 in [Room 313](#) of physics building

Textbook: "Optics" by Eugene Hecht, 5th Ed (Pearson global edition)

*Background knowledge of electromagnetism is strongly recommended but not required.

Grades: Exams 30 % × 2, homework 40 %.

Homework: There will be a homework assignment in approximately every two weeks.

Schedule (subject to change):

| Week | Date (Tue. Thu.) | Covered materials |
|------|------------------|---|
| 1 | 2/14, 2/16 | Introduction, Fresnel diffraction |
| 2 | 2/21, 2/23 | Fresnel diffraction, Kirchoff's theory |
| 3 | 2/28, 3/2 | Fourier optics |
| 4 | 3/7, 3/9 | Fourier optics |
| 5 | 3/14, 3/16 | Lasers |
| 6 | 3/21, 3/23 | Applications of lasers |
| 7 | 3/28, 3/30 | Coherence |
| 8 | 4/4, 4/6 | Holiday |
| 9 | 4/11, 4/13 | Coherence |
| 10 | 4/18, 4/20 | Midterm Exam, review exams |
| 11 | 4/25, 4/27 | Non-linear optics |
| 12 | 5/2, 5/4 | Quantum optics: photon number statistics |
| 13 | 5/9, 5/11 | Quantum optics: correlation function |
| 14 | 5/16, 5/18 | Quantum optics: number state and coherent state |
| 15 | 5/23, 5/25 | Quantum optics: entanglement and teleportation |
| 16 | 5/30, 6/1 | Light-atom interaction |
| 17 | 6/6, 6/8 | Laser spectroscopy |
| 18 | 6/13 | Final Exam |