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term B, 2017
Oct. 24, 2017

PH2502 -- INTRODUCTION TO LASERS

Time: M Tu Th F 10:00-10:50

Room: Olin 218

Text: Photonics and Lasers: an Introduction
R.S. Quimby (Wiley, 2006)

Exams: In-class exams: Tues 11/14/17
Fri 12/1/17 (postponed to Mon 12/1/17)
Fri 12/15/17

Homework: Homework problem sets will be assigned and collected for grading as indicated in the study guides or as announced in class. The first homework will be due in class on Tuesday Oct 31. Solutions will be made available soon after the homework is due, and late homework cannot be accepted after the solutions are published. Students may discuss the problems with each other (or with any other person, including the instructor), but the homework turned in is to be done by the student in his/her own style. No "copying" of another student's solutions is allowed.

Term papers: Students using the course as the Capstone for a Physics Minor will write a term paper on a topic relating to lasers, in addition to the other course requirements. If this applies to you, please check with the instructor for details.

Evaluations: 1) exams (70%)
2) homework (20%)
3) class participation (10%)

On Reserve: 1. Silfvast, LASER FUNDAMENTALS (2nd edition)
2. Hawkes and Latimer, LASERS: THEORY AND PRACTICE

| week | dates | Topics | Chapters |
|------|---------------|--|----------|
| 1 | 10/24 - 10/27 | Optics review; Coherent light | 1, 2, 15 |
| 2 | 10/30 - 11/3 | Optical resonators, Gaussian beam optics | 16, 17 |
| 3 | 11/6 - 11/10 | Stimulated emission; optical amplification | 18, 19 |
| 4 | 11/13 - 11/17 | Laser oscillation threshold, output power | 20 |
| 5 | 11/20 - 11/21 | CW laser characteristics | 21 |
| 6 | 11/27 - 12/1 | Pulsed lasers | 22 |
| 7 | 12/4 - 12/8 | Types of lasers | 23 |