Physics 631: Classical Electrodynamics

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• Syllabus:

1. Week one: no class, review of your knowledge learned in Physics 630.

2. Week two: Special relativity (1/18, 1/20)

3. Week three: Special relativity (1/25, 1/27)

4. Week four: Electromagnetic field equations (2/1, 2/3)

5. Week five: Waveguides, (Jackson Chapter 8) (2/8, 2/10)

6. Week six: Waveguides, (Jackson Chapter 8) (2/15, 2/17)

7. Week seven: Berry phase (2/22), Photonics (2/24)

8. Week eight: midterm

9. Week nine: The field of moving charges (2/22, 2/24)

10. Week ten: Radiation (3/8, 3/10)


12. Week twelve: Radiation (4/5, 4/7)

13. Week thirteen: Radiation (4/12, 4/14)

14. Week fourteen: Monopole (4/19, 4/21)

15. Week fifteen: to be decided (4/26, 4/29)

16. Final exam

• Homework: Homework will be assigned biweekly and will be due in two weeks after it is assigned. Homework will count for fifty percent of your total score.

• Exams: There will be a midterm and final exams, which will count for twenty percent and thirty percent of your total score respectively. Both exams will be take-home exams.

• Textbooks: Classical Electrodynamics (J. D. Jackson, required). The Classical theory of Fields (L. D. Landau and E. M. Lifshitz, recommended)