

**Physics B****Electromagnetism****M 13:20 – 14:50**

Course No. : 1532

Room : Main Bldg. H136

Instructor : Todd Tilma

Office : Main Bldg. 122A

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**Office Hours**

Monday - Periods 3 and 4 (Open door policy)

Monday thru Friday - Periods 9 and 10 (By appointment only)

**Teaching Assistant**White/Red - Yasui-sensei ([yasuis@th.phys.titech.ac.jp](mailto:yasuis@th.phys.titech.ac.jp))

Office Hours : TBA during first class on 19/26 October

Homework - Saito-sensei ([saito@mail.nucl.ap.titech.ac.jp](mailto:saito@mail.nucl.ap.titech.ac.jp))

Questions about homework, please email Saito-sensei

**Grading**

30 pts - Homework

30 pts - (2 x 15 pts) Take Home Exams

40 pts - Final Exam

*100 pts - TOTAL***Class Overview**

In this class you will learn about electromagnetic fields, including electrostatics and magnetostatics, EM waves, and even a bit of relativity (if we have time). You will also learn some of the mathematical techniques of importance to physics. In short, you are going to be introduced to the way physics is really done by physicists!

Now, as one of my professors used to say, “my duty is to help you learn and your duty is to learn.” So with that in mind, my plan is as follows. I’m going to cover the text, following the below schedule to the best of my ability. Your duties include studying the text and handouts, reading other texts as necessary, working with other in the class, doing homework, and taking exams. I assign lots of homework (in relative terms), and you should work together to complete it. However, what you submit must be in your own words and using your own ideas. My exams are challenging but doable; if you have done all the homework as well as worked through the problems in the textbook, you should be able to pass. However, you are expected to attend classes and enshuu (and be prepared!) and to participate: One of your main duties is to ask questions. If you don’t come and don’t participate, you won’t be able to succeed. It’s your choice.

## 講義 Schedule

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Review      5 October  
数学練習

Lecture 1      19 October  
電気力と電場

Lecture 2      26 October  
電気力と電場

Lecture 3      2 November  
電位と電気容量

Lecture 4      9 November  
電位と電気容量

Lecture 5      16 November  
電流と直流回路

Lecture 6      30 November  
電流と直流回路

**Take Home Exam One (Posted 2 December @ 08:00. Due 4 December @ 20:00)**

Lecture 7      7 December  
磁気力と磁場

Lecture 8      14 December  
磁気力と磁場

Lecture 9      21 December  
ファラデーの法則とインダクタンス

Lecture 10      4 January  
ファラデーの法則とインダクタンス

Lecture 11      12 January  
電磁波

Lecture 12      18 January  
電磁波

Lecture 13      25 January  
相対性理論 + 現代物理学

**Take Home Exam Two (Posted 27 January @ 08:00. Due 29 January @ 20:00)**

Final Review      1 February

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## 演習 Schedule

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演習 1      19/26 October

数学練習

演習 2      2/9 November

電気力と電場 + 電位と電気容量

演習 3      16/30 November

電位と電気容量 + 電流と直流回路

**Report One Problems Due**

演習 4      7/14 December

磁気力と磁場

演習 5      21 December/4 January

ファラデーの法則とインダクタンス

演習 6      12/18 January

電磁波

**Report Two Problems Due**

演習 7      25 January/1 February

相対性理論 + 現代物理学

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## Homework Schedule (Posted on OCW)

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Homework 1      Posted to OCW on 5 October. Due by 12:00pm on 26 October  
電気力と電場

Homework 2      Posted to OCW on 23 October. Due by 12:00pm on 13 November  
電位と電気容量

Homework 3      Posted to OCW on 9 November. Due by 12:00pm on 30 November  
電流と直流回路

Homework 4      Posted to OCW on 4 December. Due by 12:00pm on 25 December  
磁気力と磁場

Homework 5      Posted to OCW on 21 December. Due by 12:00pm on 11 January  
ファラデーの法則とインダクタンス

Homework 6      Posted to OCW on 8 January. Due by 12:00pm on 29 January  
電磁波

Solutions to homework sets will be posted to OCW the day after each homework set's due date. Homework is to be turned in at 齊藤先生 mailbox outside of 西 3-312. In order to receive full credit, all homework problems must be done.

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