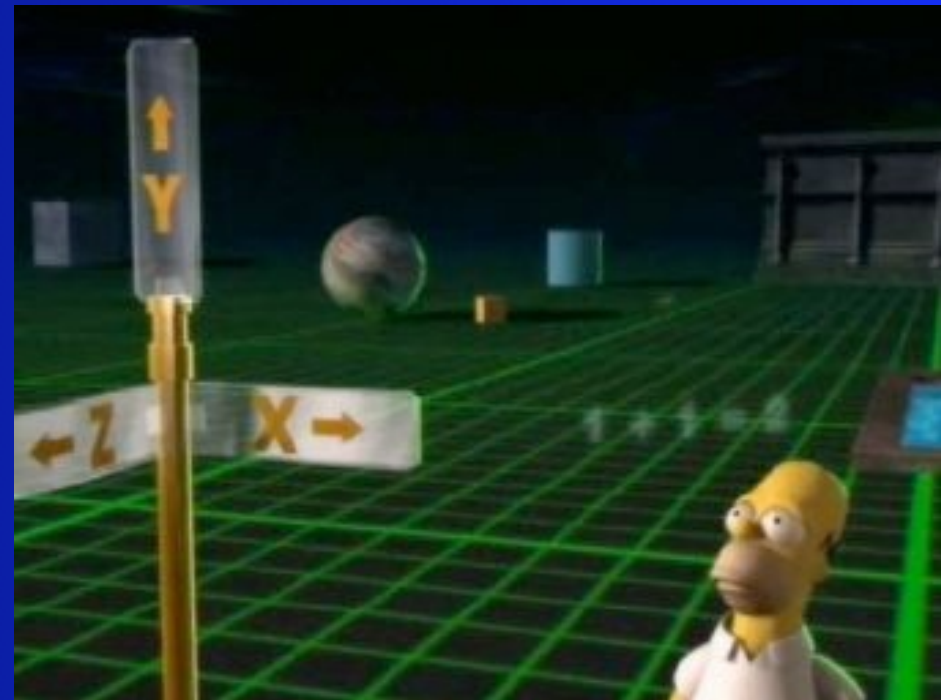
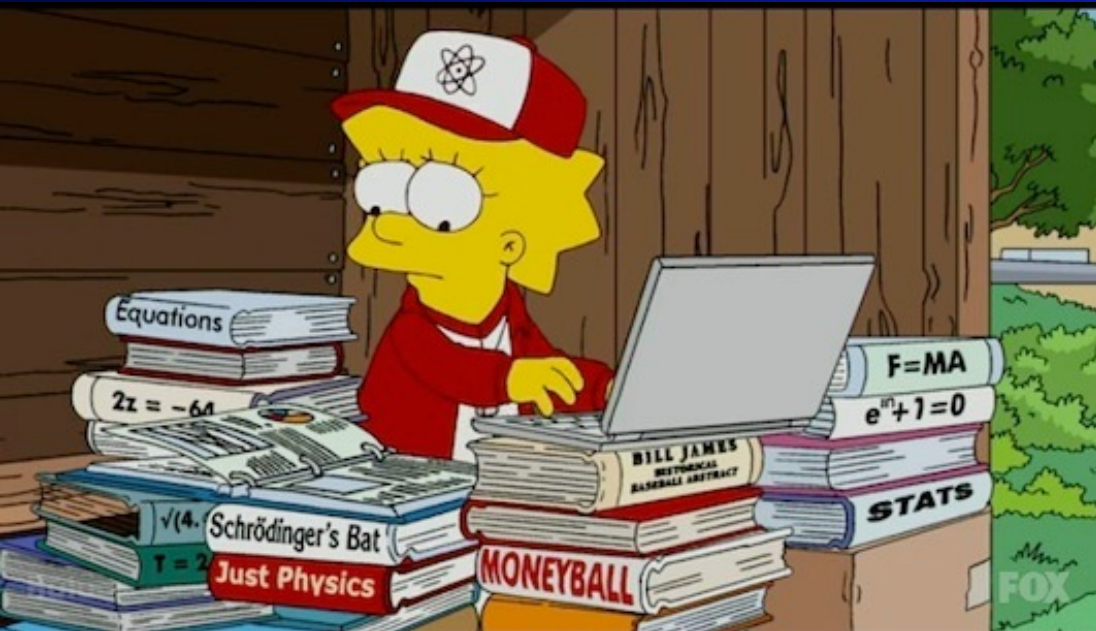


Welcome to Physics 1C!

Waves, Optics, and Modern Physics

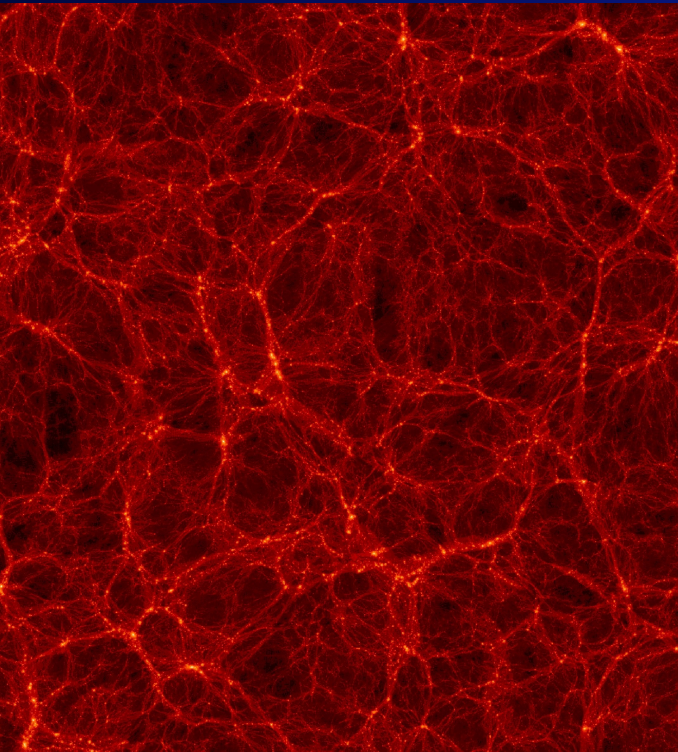
2622 York Hall, MWF 1-1:50pm



Who am I?

- Ramin Skibba
rskibba@ucsd.edu, 429 SERF building
- I work in astrophysics, especially involving galaxy formation, dark matter, and cosmology
- My interests also include science policy and science communication
- TA: Bili Dong, leads PBs on Thursdays at 8pm
b2dong@ucsd.edu

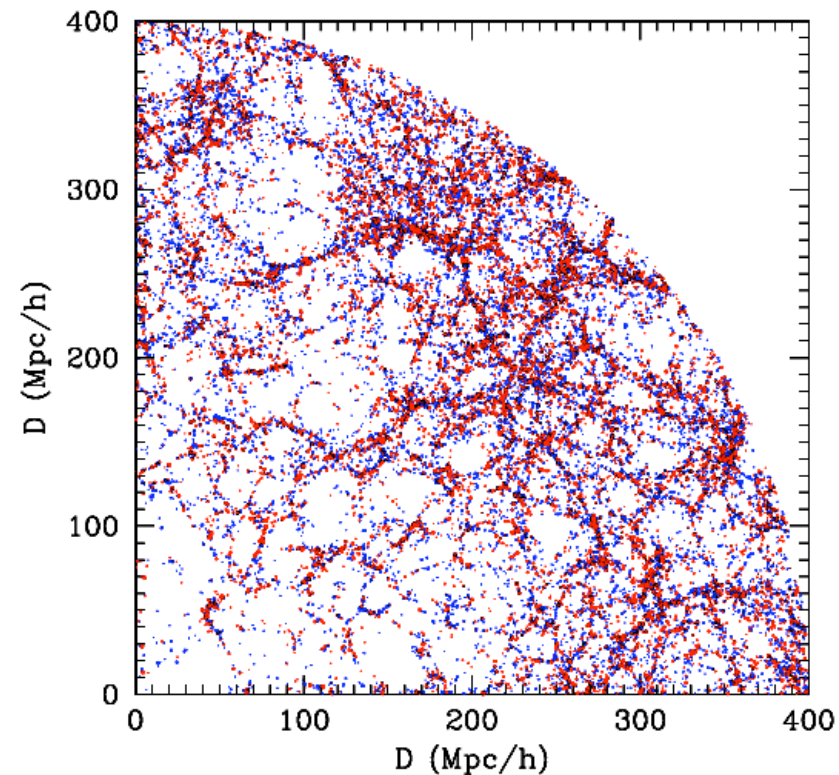
Large-scale structure of Galaxies & Dark Matter



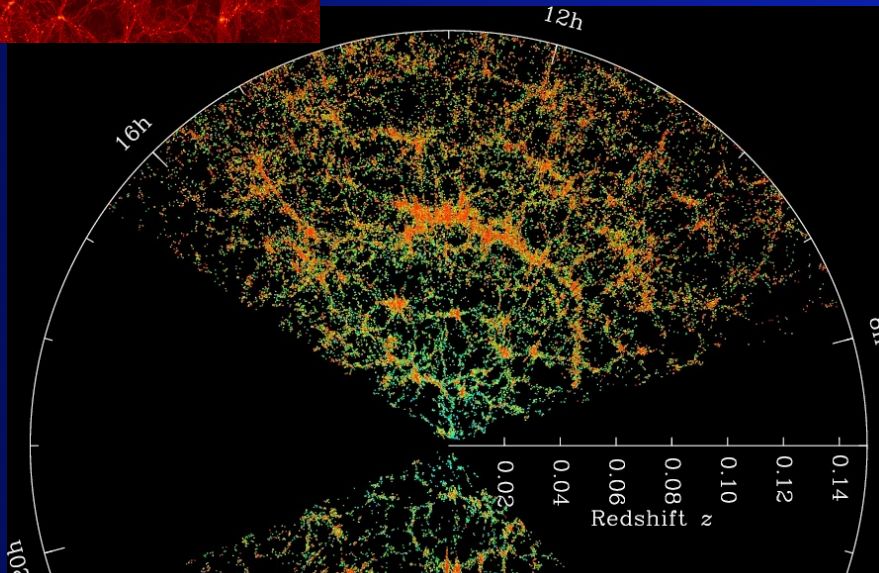
DM haloes
in Bolshoi
Simulation



galaxies in my model



galaxies in
Sloan Digital
Sky Survey



Skibba et al. (2013)

Going beyond lectures...

The more you're engaged and think critically, the more you'll learn.

“The lecture method is the process whereby the lecture notes of the instructor get transferred to the notebooks of the students without passing through the brains of either!”

-- Darrell Huff



The Montillation of Traxoline

It is very important that you learn about traxoline. Traxoline is a new form of zionter. It is montilled in Ceristanna. The Ceristannians gristerlate large amounts of fevon and then brachter it to quasel traxoline. Traxoline may well be one of our most lukized snezlaus in the future because of our zionter lesceledge.

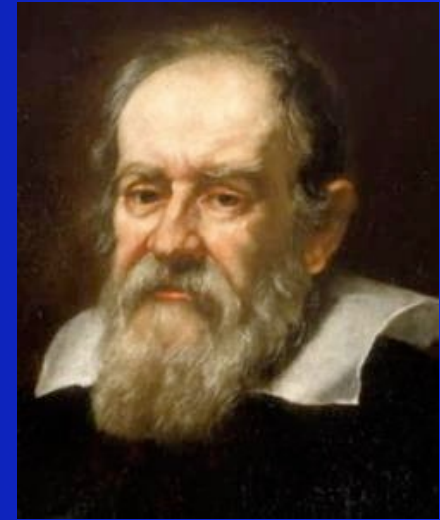
Directions: Answer the following questions in complete sentences. Be sure to use your best handwriting.

- What is traxoline?
- Where is traxoline montilled?
- How is traxoline quaselled?
- Why is it important to know about traxoline?

some words of inspiration

“You cannot teach a man anything; you can only help him to find it within himself.”

- Galileo Galilei



“Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less.”

- Marie Curie

Physics 1CL

Lab TA Coordinators

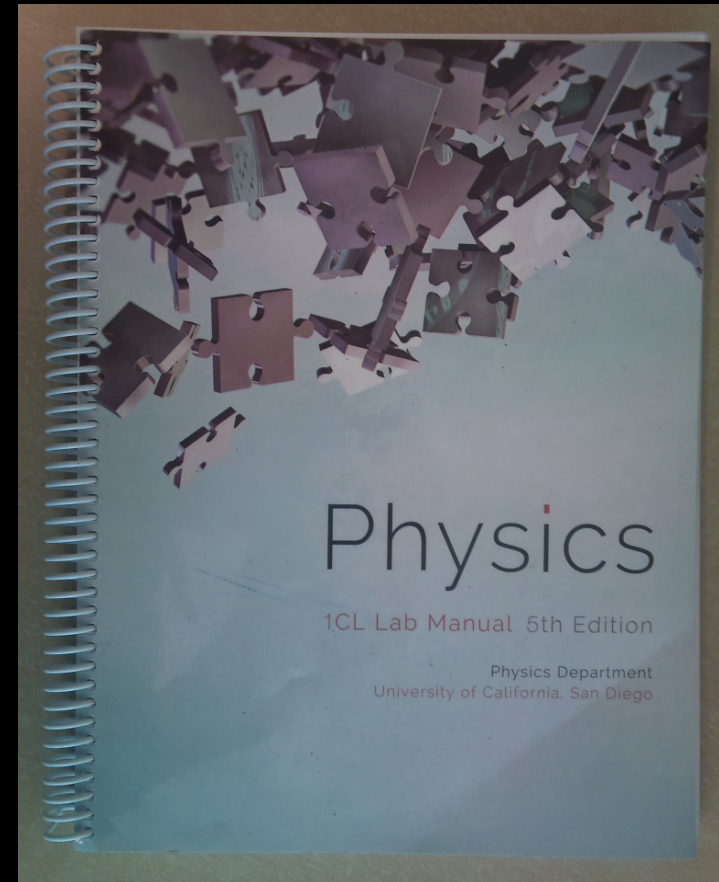
Hsi-Ming Chan h2chang@ucsd.edu

Paul Hemphill pbhemphill@ucsd.edu

Faculty Instructor

Prof. Alex Groisman

agroisman@ucsd.edu



Lab Manual (5th Edition) is available at the bookstore.

Syllabus/Calendar Link/Supplementary Materials on TED.

Labs start ***this*** week!

- Lab classes start on the ***1st week*** of classes (this week!).
- The 1st week will be a general review of Phys 1CL and of the safety rules.
- No preparation is required for the first lab class and it will not be graded.
- Lab 1 will take place on the 2nd week of classes (next week).
- The attendance of the lab classes on the 1st and 2nd week is ***mandatory***. You will not be able to take Phys 1CL if you miss it on either 1st or 2nd week.

The labs are located in 2306 and 2326 Mayer Hall!
Attendance in labs are mandatory for the first two lab meetings starting from

week one!

You are to bring the Academic Integrity Policy to the first day of lab.

The reading quiz given on the second lab meeting will be partially based on the Academic Integrity Policy and the Scientific Integrity Primer!



Learner-Centered Components of the Course

1. clickers

PHYS 18 - Kishimoto [W113]

- Home Page
- WebAssign Link
- Syllabus
- Metacognition Notes
- Reading Quiz Questions
- Register your Clicker**
- Help for WebAssign
- Discussions
- Tools
- Help
- Library Help

COURSE MANAGEMENT

i>clicker Instructor Remote Registration

Use this form to register your i>clicker remote. Once you register your remote it will be registered for all your classes. [More Help](#)

* Indicates a required field.

- iClicker ID**
Enter the 8-character remote clicker ID (or a 12-character web>click any time).
* Remote ID
- Submit**
Click Submit to proceed. Click Cancel to quit.

Cancel Submit

Remote ID (8-character code)

i>clicker 1 back i>clicker 2 back

Knowledge-Centered Components of the Course

1. **clickers**
2. **textbook**
 - weekly reading quizzes
 - suggested homework
3. **extra credit:** writing about physics apps

Assessment-Centered Components of the Course

1. clickers
2. textbook
 - weekly reading quizzes
 - suggested homework
3. extra credit: writing about physics apps
4. **weekly homework problems**
5. **biweekly tests**

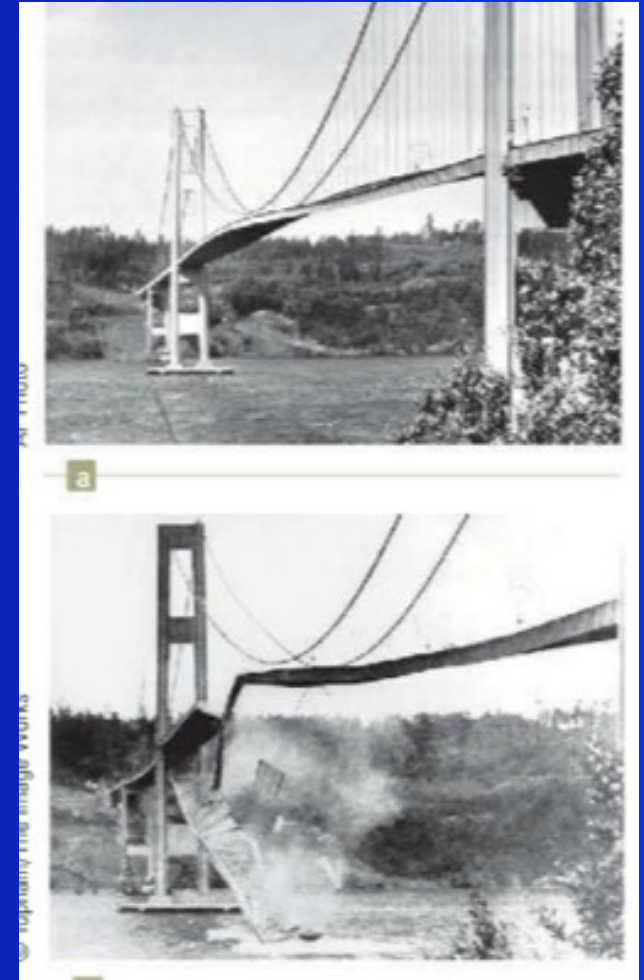
WebAssign

You should have access to WebAssign with your textbook. If not, today or Wednesday we'll give you free access.

Weekly homework problems and reading quizzes will be assigned there.

We will have assignments this week, but for the first week they won't be graded.

<http://www.webassign.net>



Components of the Course

schedule of biweekly tests and final exam...

five tests every other week (on Fridays, except for last one):

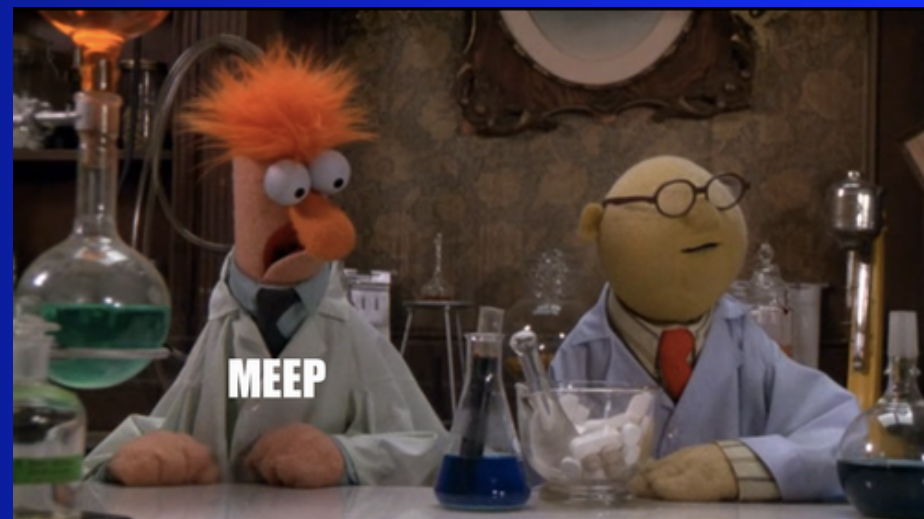
- April 10th
- April 24th
- May 8th
- May 22nd
- June 3rd

Final Exam: during week of June 6th-12th

Components of the Course

Grading Scheme

- **Class participation (10%)**
 - clickers
 - homework problems
 - reading quizzes
- **Biweekly exams (60%)**
- **Final exam (30%)**
- **Extra credit (0-5%)**



Components of the Course

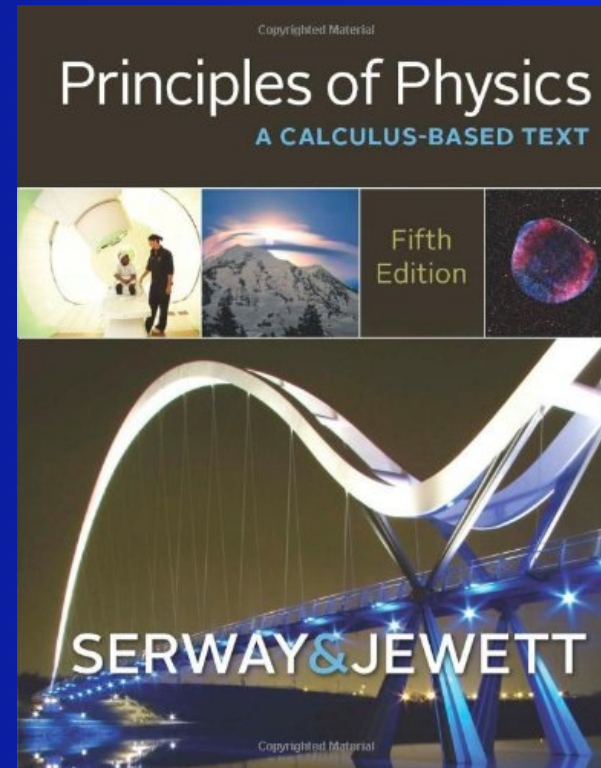
Physics we'll explore this spring:

- **Oscillatory Motion** (chapter 12)
- **Mechanical Waves** (ch. 13)
- **Superposition and Standing Waves** (ch. 14)
- **Wave Optics** (ch. 27)
- **Reflection and Refraction of Light** (ch. 25)
- **Image Formation by Mirrors and Lenses** (ch. 26)
- **Quantum Physics** (ch. 28)
- **Atomic Physics** (ch. 29)
- **Nuclear Physics** (ch. 30)
- **Particle Physics** (ch. 31)

What will you need?

(other than your brain and your motivation)

- **textbook:** Serway & Jewitt, *Principles of Physics*, 5th ed.
- **i>clicker remote**
- **scientific calculator**
- **6 scantrons**, form X101864-PAR
- **No. 2 pencils** to fill in scantrons
- **FREE WebAssign account**



ParSCORE™

Test Form
Compatible with
Scantron 487BM scantron only

DIRECTIONS

◀ 1. USE NO PENCIL ONLY 1

2. MAKE DARK MARKS

3. CHANGE COMPLETELY TO CHANGE

EX. ANSWER

1 2 3 4 5 6 7 8 9 10

1 1 1 1 1 1 1 1 1 1

2 2 2 2 2 2 2 2 2 2

3 3 3 3 3 3 3 3 3 3

4 4 4 4 4 4 4 4 4 4

5 5 5 5 5 5 5 5 5 5

6 6 6 6 6 6 6 6 6 6

7 7 7 7 7 7 7 7 7 7

8 8 8 8 8 8 8 8 8 8

9 9 9 9 9 9 9 9 9 9

KEY

1-2-3-4-5

(T) (F)

1 A B C D E

2 A B C D E

3 A B C D E

4 A B C D E

5 A B C D E

6 A B C D E

7 A B C D E

8 A B C D E

9 A B C D E

10 A B C D E

11 A B C D E

12 A B C D E

13 A B C D E

14 A B C D E

15 A B C D E

16 A B C D E

17 A B C D E

18 A B C D E

19 A B C D E

20 A B C D E

21 A B C D E

22 A B C D E

23 A B C D E

24 A B C D E

25 A B C D E

26 A B C D E

27 A B C D E

28 A B C D E

29 A B C D E

30 A B C D E

31 A B C D E

32 A B C D E

33 A B C D E

34 A B C D E

35 A B C D E

36 A B C D E

37 A B C D E

38 A B C D E

39 A B C D E

40 A B C D E

41 A B C D E

42 A B C D E

43 A B C D E

44 A B C D E

45 A B C D E

46 A B C D E

47 A B C D E

48 A B C D E

49 A B C D E

50 A B C D E

TEST FORM

A B C D

EXAM NUMBER

1 2 3 4 5 6 7 8 9 10

1 1 1 1 1 1 1 1 1 1

2 2 2 2 2 2 2 2 2 2

3 3 3 3 3 3 3 3 3 3

4 4 4 4 4 4 4 4 4 4

5 5 5 5 5 5 5 5 5 5

6 6 6 6 6 6 6 6 6 6

7 7 7 7 7 7 7 7 7 7

8 8 8 8 8 8 8 8 8 8

9 9 9 9 9 9 9 9 9 9

TESTING OFFICIAL

NAME _____

DATE _____

SUBJECT

CASE _____

TESTING OFFICIAL

NAME _____

DATE _____

SUBJECT

CASE _____

HOURLY

1 2 3 4 5 6 7 8 9 10

1 1 1 1 1 1 1 1 1 1

2 2 2 2 2 2 2 2 2 2

3 3 3 3 3 3 3 3 3 3

4 4 4 4 4 4 4 4 4 4

5 5 5 5 5 5 5 5 5 5

6 6 6 6 6 6 6 6 6 6

7 7 7 7 7 7 7 7 7 7

8 8 8 8 8 8 8 8 8 8

9 9 9 9 9 9 9 9 9 9

HOURLY

1 2 3 4 5 6 7 8 9 10

1 1 1 1 1 1 1 1 1 1

2 2 2 2 2 2 2 2 2 2

3 3 3 3 3 3 3 3 3 3

4 4 4 4 4 4 4 4 4 4

5 5 5 5 5 5 5 5 5 5

6 6 6 6 6 6 6 6 6 6

7 7 7 7 7 7 7 7 7 7

8 8 8 8 8 8 8 8 8 8

9 9 9 9 9 9 9 9 9 9

**Laptops and tablets will not be allowed in lecture.
Please turn off cell phones before class.**

**A calculator should be brought to class every day.
On exam days, you may not use a device that can
communicate with anyone else who also has calculator
capabilities.**



How do I excel in this course?

“A” means excellent

- Work smart
- Learn the material!
- Come to class and actively participate in class discussions. Be prepared for class.
- Keep up! Don't fall behind.
- Practice makes perfect, as they say. Do your homework.
- Get help ASAP if you are confused. That's what we're here for!

clicker question

What is the course TA's name?

- A. Jacques
- B. Robin
- C. Ravi
- D. Bili
- E. Karl

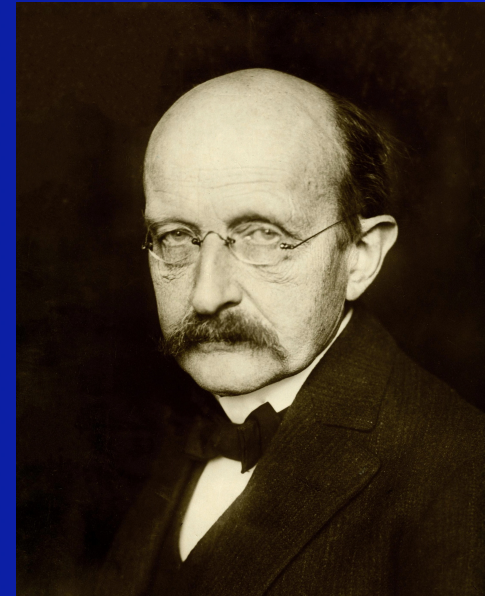
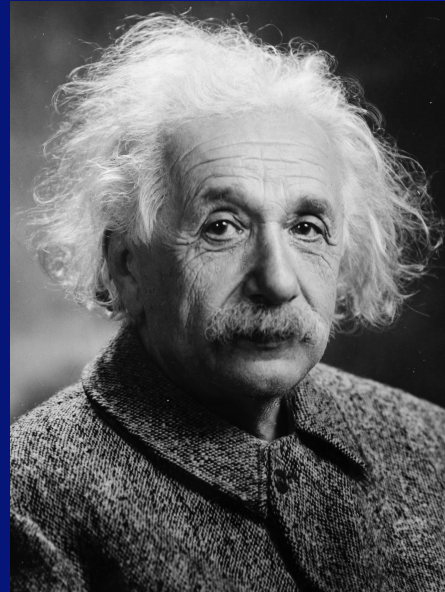
clicker question

When would the first homework problems and reading quizzes be due? Before class on:

- A. Monday
- B. Tuesday
- C. Wednesday
- D. Thursday
- E. Friday



cast of characters



Marie Curie, Albert Einstein,
Max Planck, Maria Goeppert-
Mayer, Louis de Broglie...



physics is phun!

1. What do you most look forward to learning about in this course?
2. In which field of physics do you think research and development have had the biggest impact on modern society?
 - mechanical waves (oscillatory motion, sound waves, seismic waves, etc.)
 - wave optics (lasers, holography, X-rays, lenses and mirrors, etc.)
 - quantum physics (semiconductors, transistors, electron microscope, etc.)
 - atomic and nuclear physics (radioactivity, fission, fusion, etc.)

For Wednesday:

1. get the syllabus (and these slides) from
<http://cass.ucsd.edu/~rskibba/work/Teaching.html>
2. review the syllabus and the math problems on the last page
3. make sure that you can log in to WebAssign:
<http://www.webassign.net>
4. read the first half of chapter 12 (sections 12.1-12.4)