Level 1 Physics Course

Dual Program 2022 – 2023

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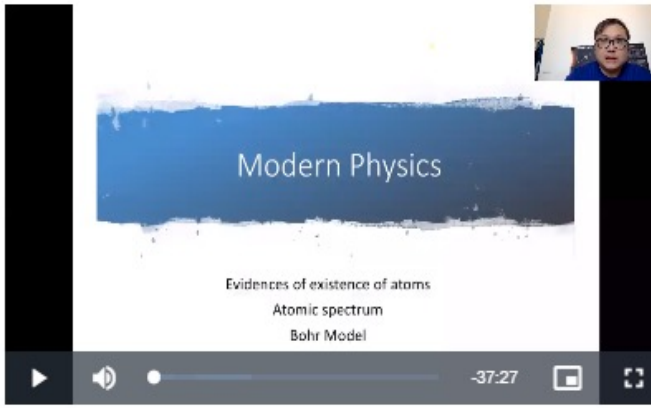
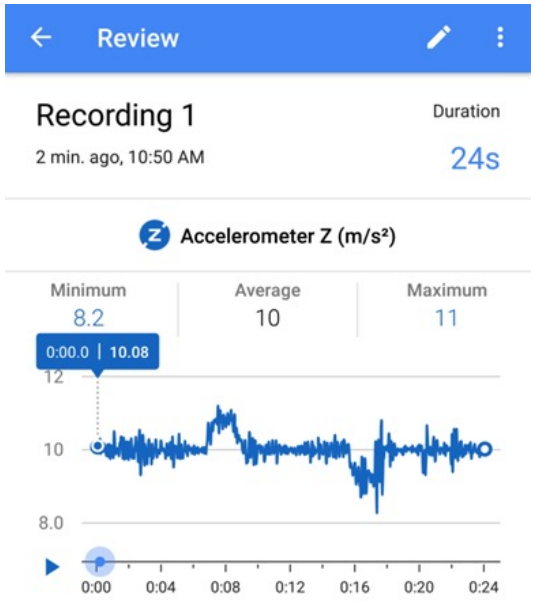
Goals of the Course

- Deepen understanding of fundamental concepts.
- Extend problem solving skills to tackle more general questions.
- Connect theories to observations with class demonstrations/home projects.
- Provide chance to learn special relativity and modern physics.
- Prepare for university level courses.

Blended Learning

- Lecture Video (1 – 1.5 hr/week)
  - Covering the key concepts and examples
  - Available about one week before the class
  - Watch before class
- Home project
  - Activities done at home with household materials and mobile devices, such as measure the speed of the elevator, how high you can jump, etc.
- Interactive learning session (~2 hr/w)
  - Zoom Meeting
  - Class exercises
  - Individual / group problem solving





Who can join?

Pass Pre-stage Physics Course /

Pass the ***screening test***

Screening Test (甄別試)

Purpose:

Ensure uniformity in students' academic background

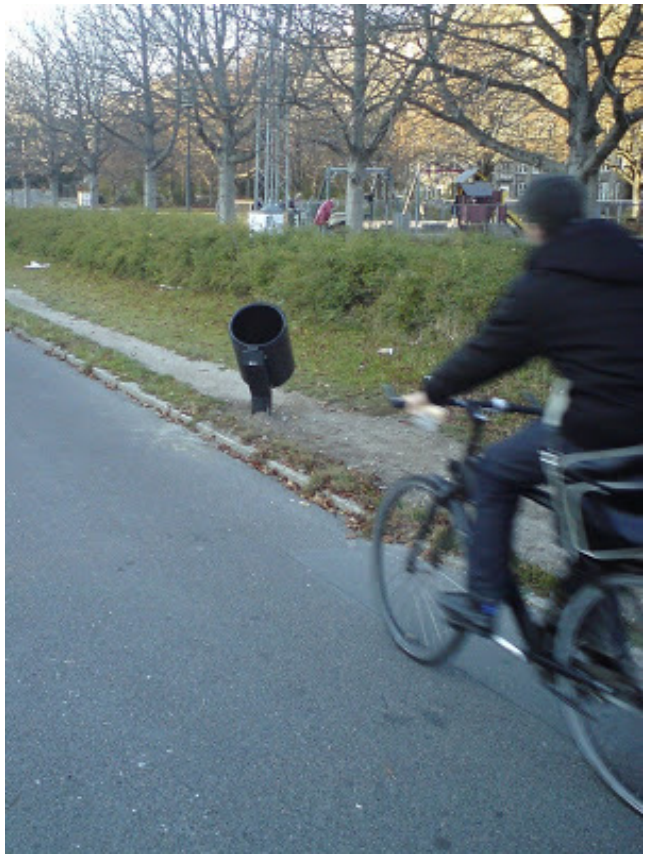
Format:

- Online Video Proctored Exam (Zoom)
- Topics covered in Pre-stage Physics (vectors, derivative and integration etc)
- 1 hours
- Short Written Questions

Test Schedule:

- Oct 8, 2022 (Sat) 2:00pm - 3:00pm
- Oct 14, 2022 (Fri) 6:30pm – 7:30pm

How should I throw a trash to the trash can when riding a bike?

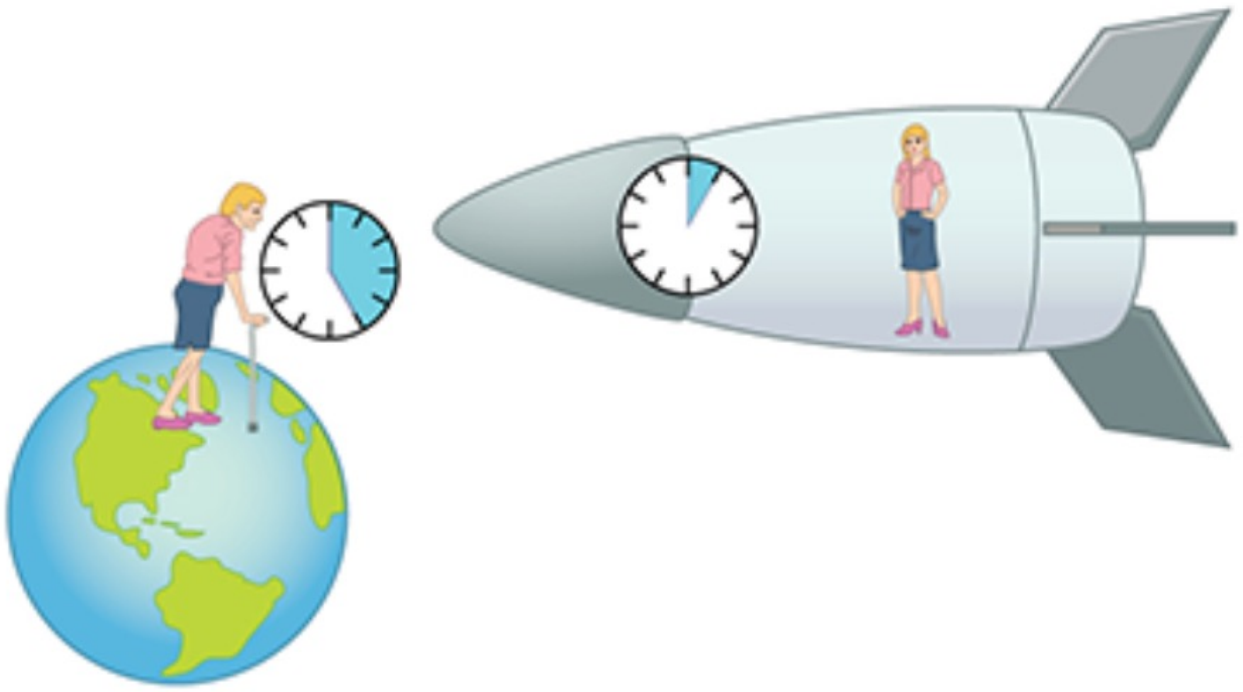


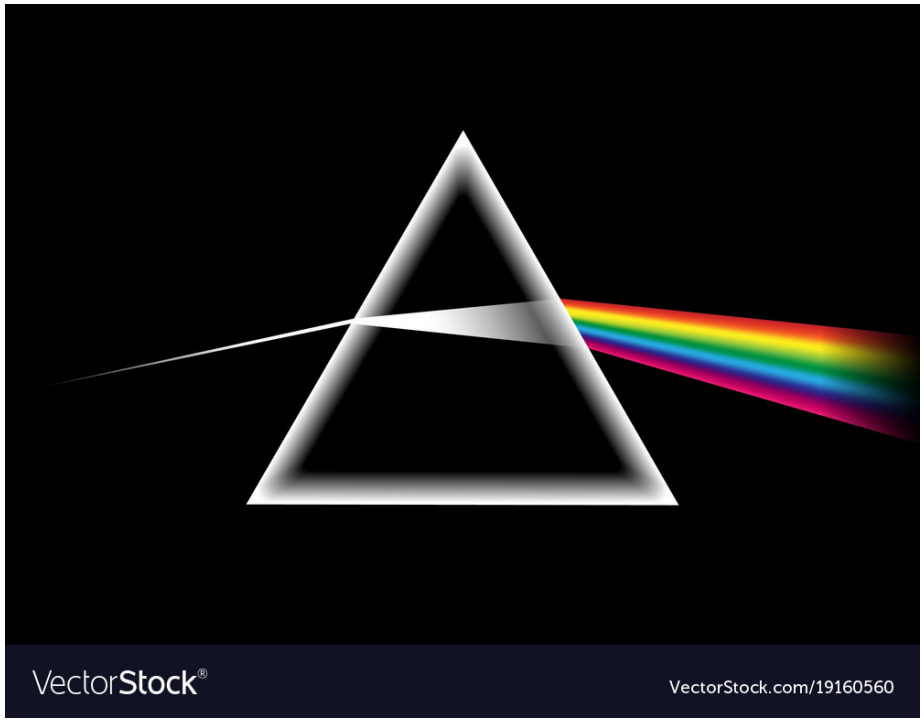
Why don’t they fall on the tilted track?

Why can’t I make a call in the lift?

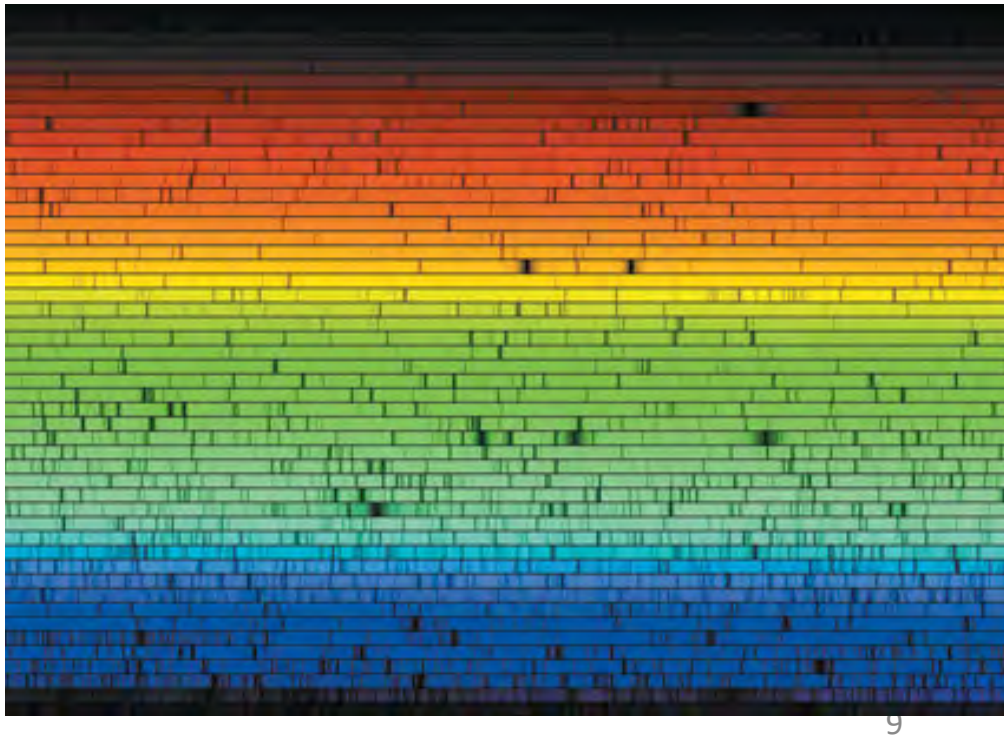
No signal…

Why you will age more slowly on a fast-moving spaceship?





39.9 The absorption line spectrum of the sun. (The spectrum "lines" read from left to right and from top to bottom, like text on a page.) The spectrum is produced by the sun's relatively cool atmosphere, which absorbs photons from deeper, hotter layers. The absorption lines thus indicate what kinds of atoms are present in the solar atmosphere.



Why is there are dark lines?

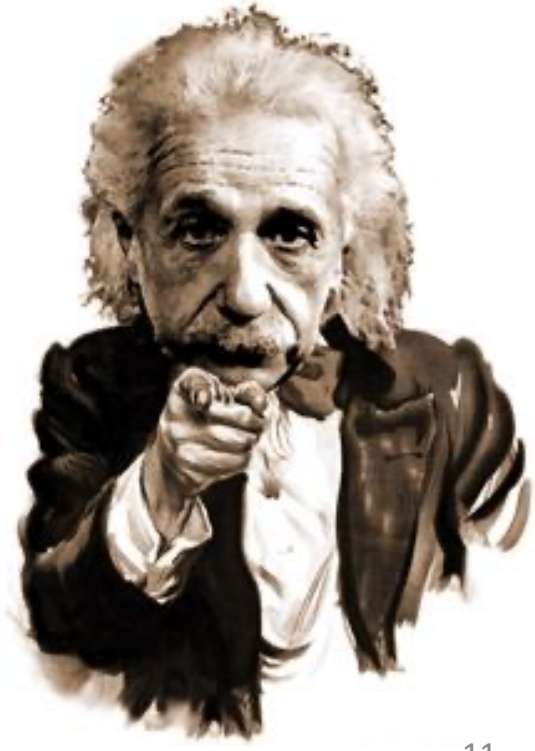
Or you want to know more

- Will "$\vec{F} = m\vec{a}$" fail? When?
- Why is kinetic energy $\frac{1}{2}mv^2$? Why not $\frac{1}{4}mv^3$?
- What is temperature?
- Could process be reversed? How about time?
- How does charging work?
- Could time be slowed down?
- Why is the sky blue? ……

If you have a passion for the topics above

and willing to commit your time and effort, and challenge yourself,

Physics course is for **you**!



Topics covers in the course

Syllabus covers four main topics:

1. Mechanics (力學)
2. Thermodynamics (熱力學)
3. Electrostatics (靜電學)
4. Modern Physics (現代物理學): Relativity and Quantum Physics (相對論及量子物理)

What's next?

- 90% completion rate.
- About 2/3 of the students are eligible to be promoted to Level 2.
- About 20 students enroll in Level 2 every year.
- Level 2 is credit bearing course equivalent to first-year general physics I at HKUST.

Thank you!