

3A class presentation (14/11/2018)

Kit: Dr. Ho and Dr. Kong, is Physics useful for technological development?

Dr. Ho & Dr. Kong: Yes, of course.

Dr. Ho: For example, physics takes an important role in cutting-edge car manufacturing.

Hin: Please tell us something about how physics can be used to make a modern car.

Dr. Lam: Let's see this experiment. When this metal plate is released into the air, it keeps swinging many times. But when this metal plate is released into a magnetic field, it stops almost immediately.

Kit & Hin: Marvelous. Why is this so?

Dr. Lam: This is because there is induced current produced in the metal plate when it moves through magnetic field.

Dr. Ho: The induced current together with the magnetic field in turn produces an opposing magnetic force that stops the plate from moving.

Kit&Hin: Oh I see. How is this used in making a car?

Dr. Lam: This phenomenon can be used in making the braking system in a modern car.

Kit: Yes, this kind of braking system can change the kinetic energy of a moving car to electrical energy and then finally chemical energy stored in the battery.

Hin: ~~But~~ The traditional braking system, on the other hand, will just waste the kinetic energy of the car.

Kit: And one more advantage of this braking system is that it does not give out much noise.

Dr. Ho: Let's take a look at ~~this~~ another experiment. There is a metal ring placed on top of a coil. When I turn on the a.c. power supply, see what happens to the ring.

Yu & Yee: The ring floats in the air! That's amazing! Please tell us why.

Dr. Ho: I'm pleased to see that you are so curious. Let me explain this to you. The changing magnetic field from the coil will pass through the ring. Then the induced current will be produced in the ring.

Dr. Lam: The induced current together with the magnetic field will then produce a repulsive magnetic force to uplift the ring. That's why the ring floats in mid-air.

Yu and Yee: It sounds interesting, but it is a bit too difficult for us to understand.

Dr. Ho: Detailed explanation will be taught in upper form Physics classes. Do you know its application in our daily lives?

Yu and Yee: Hm.... Is it the magnetic levitation train?

Dr. Ho: Yes, you two are smart.

Yu: When the train floats in the air because of magnetic force, the friction between it and the rail is greatly reduced.

Yee: And that's why the train can move with high speed.

Dr. Ho: Excellent! You two are geniuses!

All students: That's the end of our presentation. Thank you.