

6A class presentation scripts

28/9/2016

Dr. River: Chan Yat Ho

Pang (Dr. River's assistant): Pang Chun Kin

Joby: Cheng On Kiu

Crystal: Ng Maan Sum

Narrator: Lee Kit Wah

Narrator: When Dr. River and his assistant Mr. Pang are examining an experiment kit set, Joby and Crystal are passing by. The two girls are wondering what the kit set is.

Joby and Crystal: Hi! Dr. River, what are you working on?

Dr. River: Hi! Joby and Crystal. This is an apparatus used to demonstrate Doppler Effect.

Crystal: Doppler Effect! What is this about?

Pang: It is a phenomenon about the change in observed frequency of a wave when the source is producing the wave moving towards or away from the observer.

Crystal: What! Assistant Pang, what you've just talked about is too difficult to understand. Can you explain it in a simpler way?

Pang: Hmm....

Dr. River: Let me show you Doppler Effect by using this apparatus!

Narrator: Dr. River then turns on the buzzer of the apparatus.

Dr. River: What do you observe?

Crystal and Joby: Just a "beep" sound produced by the buzzer of the apparatus.

Dr. River: Yes, you are right. Is there any variation in the pitch of the sound you've heard?

Crystal: No, the pitch is very steady.

Joby: There is no variation in the pitch at all.

Dr. River: Right! Now, I am going to ask assistant Pang to whirl the buzzer in a horizontal circle above his head. Please be careful not to be hit by it and observe the pitch carefully. Assistant Pang, please.

Narrator: Assistant Pang is whirling the buzzer over his head in a horizontal circle slowly.

Dr. River: Crystal and Joby, what do you observe now?

Crystal: I find that the pitch is sometimes higher and sometimes lower. It is amazing!

Dr. River: Crystal, good job. But I want you two to go one step forward. Try to find out when the pitch becomes higher and when the pitch becomes lower.

Crystal and Joby: Yes, Doctor.

Narrator: Crystal and Joby are studying the relationship between the motion of the buzzer and the change in frequency of the sound heard carefully.

Joby: Doctor, is it true that the pitch becomes higher when the source is moving towards us?

Crystal: And the observed pitch becomes lower when the source is moving away from us.

Dr. River: Assistant Pang, please stop whirling.

Pang: I've been waiting for this command for a long time. I'm really tired!

Dr. River: Crystal and Joby, exactly! You two are extraordinarily intelligent. And this is what we called Doppler Effect.

Crystal: Oh I see. When the sound source is approaching to us, the frequency of the sound we heard becomes higher.

Joby: And when the sound source is receding from us, the frequency of the sound we heard becomes lower.

Crystal and Joby: This is Doppler Effect.

Dr. River: Yes, you are right. Furthermore, not only does the Doppler Effect occur in sound wave, but it also occurs in all kinds of waves, for example, water wave and even light wave.

Pang: The Doppler Effect in light is used by astronomers to determine the speed of faraway galaxies in relation to us. And it is astonishing to find that most of the galaxies are moving away from us

Dr. River: Right, that's what we called a red shift, which means the spectra of faraway galaxies are shifted to the longer wavelength side. And this helps the deduction of the Big Bang Theory.

Crystal and Joby: Big Bang Theory! Is it a great and influential theory?

Pang: Yes, this theory changed the way that scientists thought about the origin of universe. Due to the discovery of red shift, the universe is ever expanding. At a certain point of time in the past, everything in the universe has been extremely close to each other. From that point of time onwards, the space has expanded at high speed. This expansion is known as the Big Bang.

Crystal and Joby: So Physics is very interesting and very important.

ALL: That's the end of our presentation and thanks for watching.