

YEN-JIE LEE:

I decided to include a lot of demos during my lectures. That is because I believe to learn physics, you have to know how to convert everything into mathematics. You want to work on the mathematics and to make predictions, and finally, you want to compare the predictions to experimental data. Demonstrations are particularly useful because I would like to show that the mathematics we covered during the classroom actually have a lot of consequence. It's actually really to do with what nature does to all the physical systems we are interested.

So that's actually why we first-- usually the structure is like this. We first introduce the physical situation we are interested then we use the concepts and the mathematics to solve the physical system, and finally, the last part is to enjoy what we have learned from this hard work. To compare our mathematical solution to reality, which is actually the demo. So that is actually why I introduce so many demos during the class, and those, I do think, using those demos people will remember more about the conclusion we can actually get from the mathematics instead of overwhelmed by a lot of calculations during the class.

There are so many interesting demos which we covered. One of my favorite demos is the Bell wave machine. First of all, it's really a very beautiful demo. It is so beautiful to see the sinusoidal wave. It can be produced from this simple device. Secondly, you you can actually manipulate them, you can connect them to each other, and you can see waves essentially bouncing between systems, and then you can see the reflection of the traveling wave. It's so beautiful, and that's actually my favorite demo during the class. I believe most of the students are also interested in that demo very, very much.