"**Earthquake Waves"**

Shengji Wei
Nanyang Technological University

Seismic hazard possesses one of the deadly threads to human society. Earthquakes are the sudden breakdown of the crustal rocks, as a result of over stressing by the loading of relative plate motions. The rapid breakdown of the faults produces strong ground shaking that can damage buildings, bridges and other infrastructures, resulting in heavy economic and life losses. To adequately prepare for future earthquakes, we have to better understand the physics of earthquakes and the seismic waves they generate. In this presentation, I will summarize several key aspects of earthquake physics and introduce a few modern approaches to represent earthquake source as well as some basic features of the ground shaking.

On the other hand, the seismic waves generated by the earthquakes are the best proxies for us to better understand the structure beneath the surface of earth, since seismic waves are the most efficient and accurate physical measurements we can have to reveal the complex structure of the earth. For example, using the seismic waveform data, seismologists discovered the existence of the liquid outer core of the earth about 100 years ago. In this talk, I will use a few examples to demonstrate how and what can we learn from the seismic data to better reveal the fascinating structure of the earth.