

Using resonance to determine the speed of sound in air

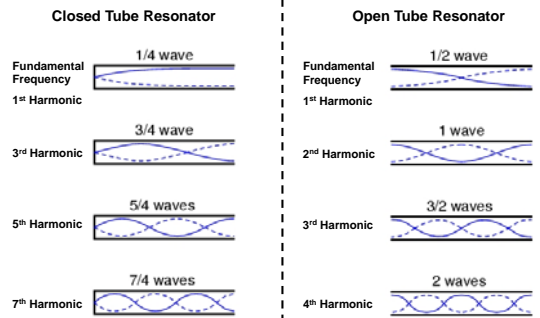
Resonance

- **Resonance** is the tendency of a system to oscillate at greater amplitude at some frequencies than at others.
- These are known as the system's **resonant frequencies** (or *resonance frequencies*).
- At these frequencies, even small periodic driving forces can produce large amplitude oscillations.

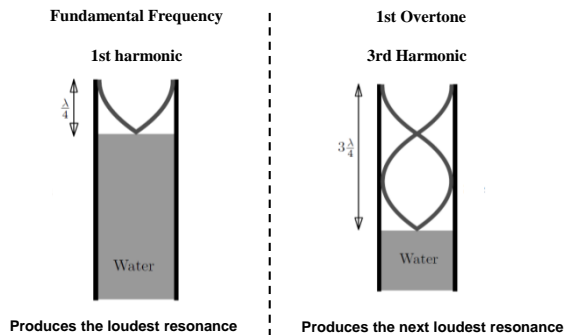
Resonance

- Acoustic resonance is an important consideration for instrument builders most acoustic instruments use resonators, such as
 - the strings and body of a violin,
 - the length of tube in a flute,
 - the shape of a drum membrane.
- Acoustic resonance is also important for hearing. Our ear canal acts like a closed tube resonator.

Open versus Closed Tube



Closed Tube Resonator



Closed Tube Resonator

