

RELATIONSHIP BETWEEN SOUND AND WATER

Team 08

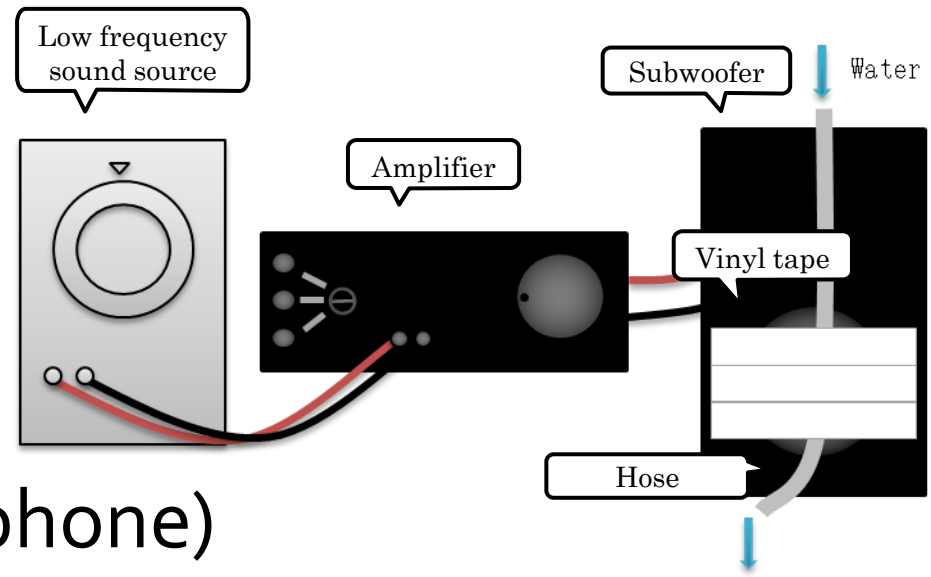
〈Introduction〉

- We apply sound to the hose and we can observe the phenomenon water flows spirally
 - The mechanism is unknown
- ↓
- We want to know the relationship between frequency and spiral shapes



〈Materials〉

- Low frequency sound source
- Amplifier
- Subwoofer
- Hose(made by silicon)
- Vinyl tape
- Camera(smartphone)



〈Methods〉

connect a hose and a PET bottle



turn on the power of these equipment and run water

〈Result and Discussion〉

① Frequency

- In case of 24Hz(24fps), 30Hz(30fps), 60Hz(60fps), 120Hz(120fps)
Increase frequency → Spiral length became narrowed
- In case of 120Hz(120fps), the shape of the water did not change
→ The hose cannot vibrate because of the vibrating speed

② Frequency and frames Per Second

Frequency (24fps)	23Hz	24Hz	25Hz
Appearance	Rising	Stop	Falling
Fps and frequency	30Hz (30fps)	60Hz (60fps)	120Hz (120fps)
Appearance	Stop	Stop	-

The shape of water changes because of the position of water drops in a frame

〈Summary〉

- Heavy hose didn't vibrate
- When we increase frequency, the spiral length became narrowed
- For 120Hz, we couldn't see spiral
- The spiral movement changed by difference between the frame rate and frequency
- We saw spiral only at a specific angles due to the direction of hose movement