

Beating/Tuning forks

Key words: Sound, interference, tuning forks, beating



Equipment List:

1. 2 Tuning forks, at least one adjustable
2. Striker for tuning forks
3. (If necessary) Microphone for lecture hall

How to assemble and operate:

- Place the tuning forks next to each other
- Move the adjustment all the way up on the adjustable fork
- Strike both forks, observe the rapid “beating”
- Move the adjustment down a bit
- Strike again, observe slower beating
- Repeat a few times to show that as they get more in tune beating slows down

Description/Theory:

The experiment shows how 2 oscillators with slightly different frequencies will drift in and out of phase in a process called “beating”. The frequency of this beating is the difference between the frequencies of the 2 oscillators. If the difference is very large, a “difference tone” might be observed, where the beating becomes fast enough to be heard as a 3rd tone, but this experiment is not able to create such a tone.

Comments/Notes:

The sound is not very loud. In a large lecture hall, request a microphone and hold it close to the openings of the tuning forks.