



17. Standing waves

Reviewer:

Team Romania -
Limitless

Opponent:

Team Romania -
Limitless

Reporter:

Team Iran -
Innovative
Researchers

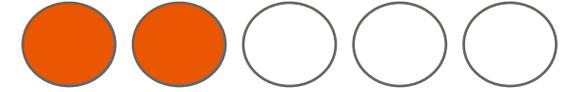
Task of the problem

Formulate a problem about an interesting experiment where standing waves are observed.

Theoretical part

Definition of waves & standing waves.

Reporter summary



Strong points

- Good graphical representation and explanation of the types of waves.
- Correct and clear standing wave formation conditions
- Good understanding of the basic theoretical concepts regarding the topic (wavelength, frequency, nodes, anti-nodes)
- Proved the phenomenon experimentally with the help of a rope
- Presented 2 experiments in which standing waves can be observed

Weak points

- Mentioned few parameters, but did not measure any of them experimentally (frequency, wavelength).
- Lack of mathematical model for predicting the phenomenon - investigated this phenomenon only experimentally (visually) and not also theoretically.
- Lack of hypothesis in the experimental part.
- Didn't show deep understanding of the topic while answering the opponent questions (relevance of travelling waves).

Opponent summary



Strong points

- Good questions and hypothetical scenarios were proposed, showing deep understanding of the subject.
- Mentioned the importance of measuring the frequency of the rope in the 1st experiment.
- Noticed lack of the mathematical model, the process of interference, lack of quantitative data and also the missing video material from experiment 2

Weak points

- Mentioned his own interpretation of the problem.
- The reporter mentioned the nodes and antinodes in his theoretical part, but the opponent persisted on this topic.

Clashes during the fight

- O: Why are travelling waves important?

R: I mentioned it in my presentation.

We: Good question asked by the opponent - standing waves = result of superposition of two travelling waves

- O: How did you measure the applied frequency to the rope in your experiment?

R: I just showed you how to make a standing wave.

We: Good observation by the opponent.

- O: Do you know what perfect harmonics are?

R: Didn't answer the question.

We: Reporter showed lack of background information.

- O: Do you believe that standing waves appearance can be mathematically predicted?

R: Yes

We: Agree with the reporter; he didn't show any mathematical model in his presentation