

REVIEWS ON THE MANUSCRIPT [36]

Reviewer 1:

Comments:

Task solved only partially. Considerations presented however, are easy to understand and touch some of the crucial aspects of the problem (place of holding the rod vs. frequency of the rod oscillations).

The strongest and the weakest aspect of the paper:

The strongest aspect of the paper is presentation of the different types of wave types in a rod and experimental analysis of their appearance in real experiment.

The weakest aspect of the paper is that sound was only analyzed by its frequency.

Parameters or characteristics like timber, color, and amplitude were nearly neglected. No considerations of the energy in system were presented (only in damping section the energy dissipation was mentioned).

Organization and Presentation:

The paper has clear, well written structure. However, few adjustments should be made:

- add an Abstract section at the beginning, in which you describe the problem, your approach to solve it, and few sentences summarizing your conclusions.
- In Conclusions at the end, be specific:
 - “different types of waves” : what does it mean? Specify it.
 - “the type of waves depends” : what’s the dependence, Again, don’t be so general. It should be summary of your results, but with the results presented.
 - etc.

Style:

- The language is very easy to understand. Sometimes it would be better to break lines in the descriptions of the equations.
- There are some spelling errors (“infuture” ->in future). Please, use spell check.

Additional Questions:

- What is the main cause of the sound?
- Does the sound depend on the way of holding (contact area, how strong you hold, surface (skin vs. gloves)
- Does the sound depend on the way of hitting (material, strength, etc)
- You write about beats in your system, and that is the result of two sounds of different frequencies. But where those sounds come from? What is their origin?

References:

References are well chosen for the topic, and properly mentioned throughout the text. Authors should add the year of publishing to the 4th reference (D. R. Lapp, “the Physics...”).

Recommendations:

- Write a chapter (five sentences approx.) with a discussion of limitations of your solution (what should be analyzed more deeply, what);
- Describe your experimental system and design. What are your measurements errors? Did the type of microphone have any impact on the results?
- Add the abstract section and change conclusions (see Organization an presentation section before);
- All the equations of different types of waves you present are only valid with some assumptions. Please, mention them in your article;
- All the graphs are hard to read. Magnify them and center in a separate line in the corner of the text column.

Summary:

The manuscript is recommended for publication after some revisions.

Reviewer 2:

Figure 2 : it is almost impossible to catch that the shape is actually hammer. Please change the picture.

Figures 5, 6, 8 : this type of graph is called spectrum. Please use the term in your paper.

Page 5, at the end of the page: “We want to return to this subject in future”. This is not a necessary thing to mention.

I found no information in the text on how the sound depends on the position of hit.

As far as I understand: in case of compression waves you investigate only the case when it is hit at one of the ends (or when sliding with a finger). But this should be mentioned in your conclusions. In case of bending waves, position of the hit will be a significant factor.

Figures with spectra: try re-plotting them in some graph-oriented software, as they look not very good.

I recommend this paper to be published, as it has a high level of theoretical investigation and experimental verification.

It makes a clear and complete view of the problem.

Editorial request

Figures 1, 3, 4, 7: Are the images of own work? If not, please reference rigorously and provide the sources for the images.

Parameters: consider typing all physical parameters in italics, not in bold italics. Please use a blank spacing between a value and a unit (0.55 m, not 0.55m).

References: please specify the necessary details for refs [3] and [4], i.e. years, publishers, and journal issues if these are journals.

All spectra: consider improving each x-axis (frequency) on each of these spectra. The scale is now small and the values will not be visible upon publication.