

## REVIEWS ON THE MANUSCRIPT [32]

### Reviewer 1:

Equation (3) : where does it come from? It is unclear which physical principles lead to this expression. Please describe the calculation of the coil current in a more clear and detailed way.

Equations (5) and (6) look quite excessive and I may consider suggesting not to place them into the article. I recommend instead adding a more physical description of your theoretical model, which would be more clear than raw formulas only. A figure illustrating your physical model would be a perfect addition to this part.

Experiment analysis : the description of influence of various parameters look good. It would be good to pay more attention to the description of processes that take place in the system. This may become a specific section of the article. A visual diagram would look great.

The overall impression is quite good. The paper features a theoretical part and experimental analysis, but lacks physical qualitative descriptions of the basic physics behind the interactions.

Article is recommended to be published if appropriate descriptions and clarifications are added.

### Reviewer 2:

The manuscript leaves a generally positive impression, is structured well and shows an amount of attentive and systematic work. The experimental data are presented clearly and explain the influence of various parameters to the velocity of the projectile.

The major drawback of the manuscript is that the theoretical expressions are not sufficiently described and justified, and it appears difficult to judge on the validity of several expressions.

The manuscript is recommended for publication, while the author is encouraged to substantiate the pathway of deriving the theory.

### Editorial request:

*Title* : Although choosing the best title may require a further revision in the future, please note that *electromagnetic* is a single word, not two words.

*Images*: Are all images in the manuscript of own work, in particular, the Figure 1? Please reference rigorously any images that are not of own work.

*Data plotting*: Please note that the Figures 7-8 have the captions where the y-axis of the plots is the function of the x-axis ("velocity vs voltage") but the Figures 9-10 have a reverse notation which is very confusing. ("discharge time vs velocity", where the velocity is not plotted at the x-axis. Consider a revision.

*References*: The list of references is not typeset properly. Please provide the references in a way that the readers may immediately understand where and how

they may look for a document. Are all references textbooks? Add publishers and the years of publication. What parts of the manuscript rely on or cite each of the references?

*Units:* Please use a blank spacing between a numerical value and its unit (5 cm, not 5cm).