

**ANSWERS TO COMMENTS ON THE MANUSCRIPT [24]
("ICE", BELARUSIAN AYPT TEAM)**

Answers to reviewer 1:

Q1. *The author states the limitations of his solution scattered through the text.*

A1. Since there are two quantitative models (simple and improved) with two sets of limitations I've decided to introduce limitations as they appear at experiments.

Q2. *If it would be possible to add a list of all variables and constants (with explanation) used in the last formula, it would be very beneficial for the article.*

A2. A table with symbols and their explanations has been added to the revised article.

Answers to reviewer 2:

Q1. *Plots and trends need to be revised. What are the trends? (Any information regarding the curve fitting, e. g. curve equation, regression, etc.)*

A1. Since these curves are fits, just used to prove type of dependence on the parameters, I don't think that curves equations will provide any additional information. Plot in the right part of fig. 2 has been revised.

Q2&3. *Could you plot any prediction from the theory? Can you examine your revised theory with results of Table 1 or any other experiments?*

A2&3. Unfortunately, it is very difficult to plot theoretical predictions, since formula has giant number of parameters, and results aren't graphic completely. As of comparison between theory and table 1, it is also difficult to perform: in the experiments, shown in the table, more than one parameter was being changed; they were used just to compare them in pairs. That is why plotting results from table 1 and results of theory is impossible.

Q4. *Figure 2 right seems unacceptable and insufficient to prove the theory. Note that a parabola would be fitted to any 3 points! Please consider the points mentioned by the previous reviewers regarding the plots.*

A4. The plot in the article now uses parabola, which goes through the (0; 0) point. Additionally, text of the article has been changed, so that this plot is stated to prove only that increase in diameter increases cutting time.

Q5. *"Figure 3": Why does the slope suddenly change?*

A5. Expanded explanations about this effect in the revised article.

Q6. *The second Paragraph of the "Introduction", mentioning the facts about transparent ice and the reasons of air bubbles probably need a reference. Please provide if possible.*

A6. Done.

Q7. *It was not so clear how the experiments were made in the transparent region only. Were the experiments stopped when the wire reaches the bubbles?*

A7. No. It was almost always possible to put the wire so that it could cut through the ice, without entering non-transparent region. This explanation has also been added to the revised article.

Q8. *First paragraph in the "Experimental Setup": I did not understand how a piece of wood reduces melting. Is it compared with another material?*

A8. Yes. Explanations about it have been added to the revised article.