*Dear NIBS’2020 delegate!*

*Please review the manuscript, assigned for reviewing* <https://indico.inp.nsk.su/event/28/papers/reviewing/>

*and summarise the results in this Report Sheet.*

*The completed Report Sheet (and* ***the reviewed manuscript*** *- if you have made some comments on it) must be*

*sent by e-mail to* [nibs2020@mail.ru](mailto:nibs2020@mail.ru)

*We would appreciate your review as soon as possible, but the deadline for reviews is the 2nd of October 2020.*

*Thank you for your kind cooperation and efforts to make the NIBS’20 Proceedings as good as possible.*

**NIBS-2020 Referee Report Sheet**

**Paper Author: Eugenia Dlougach**

**Paper Title: #8: BTR code for NBI Design and Optimization**

**Referee Guidelines** *(please, indicate your choice)*

Does the work demonstrate merit through its rigor, accuracy and correctness **(yes)**

Does the abstract provide sufficient summary of the paper **(yes)**

Does the title correctly and adequately reflect/describe the contents of the paper **(yes)**

Is there clarity in the writing; are ideas well expressed and likely to be understandable **(yes)**

Is the English of a sufficient standard to convey the science or purpose of the work **(yes)**

Does the work Layout correspond to the AIP Rules and [Templates](https://aip.scitation.org/apc/authors/preppapers) **(no).**

**Referee Comments** *(Please, write your comments here)*

***General comments:***

*The paper presents the use and power of the BTR code. Each section of the paper follows a natural and easy-to-understand path. Overall, it is an interesting paper, and my major comments are in regards to the layout and quality of the figures. However, I do have a few general questions:*

* 1. *It is written that the BTR code was developed in 2005, but it is not clear whether any recent work on the code has been done, in particular for the NIBS 2020 conference. It would be good to include a sentence about what has been done since 2005 since there are other papers published which also summarise the usage of the BTR code.* ***– added to Introduction (last paragraph)***
  2. *The authors are in multiple places referred to aspects of the BTR code itself, or it´s resolution, as* ***“infinite” or “with no limit”.*** *(see Abstract, row 10; Page 3,section 2, row 7; Page 8, section 3, row 6). This is in general an unrealistic claim, especially for a numerical model and the wording should be changed.*
* ***Corrected everywhere***

***Comments by paragraph:***

*2.1) Abstract, row 10 - “The accurate 6D statistics”, add (space + velocity components) for clarification.* ***- done***

*2.2) Abstract, row 11 – “with no limit on the surfaces amount in the model”. It is unclear what “with no limit” refers to here. If what is meant is that there is no limit of the number of surfaces in the model, then this is unrealistic and should, for clarity, be changed to “*with the number of surfaces in the model set to a desired amount by the user*” or something similar which does not imply that an infinite amount of surfaces can be used.* ***– changed to more realistic values***

*2.3) Page 3,section 2, row 7, “(with no limit)” is unrealistic; this should either be removed or changed to a more realistic value****.- done***

*2.4) Page 3, section 4, row 2-3. It should be explained which sigma refers to which cross-section.* ***- done***

*2.5) The performance of BTR is referred to realistic with respect to the applications listed under “BTR applications” on page 6. To justify this claim, there needs to be a reference to previous work where BTR was either compared to experimental results, other numerical models or analytic models. This requirement is satisfied by reference [5], so adding the same reference to this section is advised.* ***– comments and ref. are added***

*2.6) Page 8, section 3, row 6,”unlimited results resolution” is unrealistic and should be removed or replaced with a more realistic value.* ***- corrected***

***Comments by figure:***

*Figure 1) No comments.*

*Figure 2) No comments.*

***Figures 3-5*** *have the same problems. The labels are too small and the resolution is too low to be readable. Furthermore, the equations are referred to as Figures. The solution to this is to place the equations inline with correct numbering and change the references to the equations accordingly in the text. This will also allow for increasing the size of the figures so that their labels are readable.* ***– the plots are hopefully more readable now…***

***But in fact these plots give just some more examples of BTR interface elements (small part of charts, mainly used for results control). Maybe these charts could be given in the User Interface section, but placing them in the Model section seems more reasonable, as they illustrate the models. Built-in graphics usually looks not very good in papers, this is true for many codes)***

*Figure 3)*

1. *This should not be referred to as a figure. It is an equation and should follow the style guide for equations.* Equations should be centred with equation numbers on the right-hand side (flush right). Move the equation, so it is inline in the text. ***– done (leaded to figures compression to fit the total size)***
2. Axis labels are not readable and should be reformatted. Rename Figure 3b 🡪 Figure 3a ***- done***
3. Axis labels are missing. Rename Figure 3c 🡪 Figure 3b ***- done***

*Figure 4)*

1. *This should not be referred to as a figure. It is an equation and should follow the style guide for equations.* Equations should be centred with equation numbers on the right-hand side (flush right). Move the equation, so it is inline in the text. ***– done (leaded to figures compression to fit the total size)***
2. *Y-axis label is missing.* Axis labels are not readable and should be reformatted. Rename Figure 4b 🡪 Figure 4a ***– done (but added to Fig 3)***
3. *Y-axis label is missing.* Axis labels are not readable and should be reformatted. Rename Figure 4c 🡪 Figure 4b ***– done (but added to Fig 3)***

*Figure 5)*

1. *This should not be referred to as a figure. It is an equation and should follow the style guide for equations.* Equations should be centred with equation numbers on the right-hand side (flush right). Move the equation, so it is inline in the text. - ***done (leaded to figures compression to fit the total size)***
2. *Y-axis label is missing.* Axis labels are not readable and should be reformatted. Rename Figure 5b 🡪 Figure 5a ***– done***
3. *Y-axis label is missing.* Axis labels are not readable and should be reformatted. Rename Figure 5c 🡪 Figure 5b ***– done***

*Figure 6) No comments*

*Figure 7) Both x- and y-axis labels are missing in all three figures and should be included.-* ***– done***

*a) The ticks on the x-axis are written in Russian, change this to English.*

***– corrected***

*Figure 8) No comments*

*Figure 9) No comments*

***Comments by reference:***

Please prepare and **format** your references in accordance with the examples supplied with the author templates and documentation.

*[1] No comments*

*[2] Author name is missing* ***– Done (no author, but full description is added)***

*[3] Accessed date should be added* ***– Done (author and dates of creation/update)***

*[4] Accessed date should be added* ***– Done (author and dates of creation/update)***

*[5] No comments*

*[6] No comments*

*[7]* R S Hemsworth should be changed to R. S. Hemsworth ***– Done***

**Referee Recommendation** *(Select One)*

The paper should ***be Corrected*** with further review

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***Hopefully the paper looks better now. If you still notice problems, I’ll fix them.***

***Thank you for your time and kind attention!***

***Sincerely,***

***Eugenia Dlougach***