

Review for the manuscript

**"ASYMPTOTIC MODELING OF CURVILINEAR NARROW INCLUSIONS  
WITH ROUGH BOUNDARIES IN ELASTIC BODIES: CASE OF A SOFT  
INCLUSION "**

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Short report for authors

Authors have investigated mathematical models for heterogeneous bodies with inclusions. A family of variational problems for a body with a narrow inclusion lying strictly inside the body is considered. Authors deal with an important case when elastic properties of inclusion and its width depend on the small parameter  $\delta > 0$ . Furthermore, the roughness of the inclusion is characterized by given functions. They have proved that there exist three type of limiting problem as  $\delta \rightarrow 0$  which correspond to different values of  $p$ , where  $p$  is some parameter describing interaction of crack faces, i.e.  $p > 1$  body with crack without interaction of its faces;  $p = 1$  — body with crack with adhesive interaction of its faces;  $p \in [0, 1)$  — homogeneous body (no crack). The novelty of the presented manuscript consist in the fact that the following key features: “the inclusion is located strictly inside the body”, “the inclusion has a curvilinear boundary”, “the inclusion boundary is rough” were not taken into account earlier simultaneously.

The manuscript is well-organized, and main points and arguments are clearly stated. I sure recommend the manuscript for publication in “**Siberian Electronic Mathematical Reports**”. Nevertheless, there are the following some comments.

1. There is a missprint "что"(page 146, line 18).
2. The expression  $i, l = 1, 2$  should be changed to  $i, j = 1, 2$ . (page 148, after the formula for  $E_{ij}$ ).
3. The set  $\omega_m$  in the formula (7) should be determined more clearly (page 148).
4. The tensor  $C$  without indices should be determined more clearly, since in the previous text there are only the tensors  $C^0$  and  $C^1$ (page 149, formula (11)).
5. The sentence related to formulas (17) should be improved, for example “...convergences...” should finished by “take place” or by analogous words with the same sense (page 150).
6. The index  $\delta$  is omitted in the first expression of formulas (17) (page 150). The same missprint on page 151, line 10 from the bottom.
7. On the first page the title is written with the words “thing inclusions” (see footnote).