REVIEWER REPORT

Paper: «Recovering 3D density in the hyperbolic system of acoustic equations of the first order by a finite number of observations», authors D. V. Klyuchinskiy, N. S. Novikov and M. A. Shishlenin, submitted to the Journal of Applied and Industrial Mathematics.

From a formal point of view, the following should be stated. The manuscript contains the statement of the problem and the methods for its solution, which are presented clearly. The article is well structured and written in a clear and concise manner.

If the work is evaluated on its merits, it is necessary to make the following comments, taking into account which can improve the quality of the article.

1. The contribution of the authors to the topic are not indicated clearly. The work is devoted to an important applied problem that is being addressed by many other scientific teams. What is the fundamental difference between the approaches to the solution chosen by the authors compared to those already known in the literature? What are the advantages and disadvantages of the chosen methodology compared to those already known. That is the limitations of the method applicability are not marked. Answers to these questions can be given either in the introduction or highlighted in a separate section (i.e. "Discussion ").

2. In the introduction it is separately noted that the problem under consideration belongs to the class of ill-posed problems. However, further, when solving it, no regularizing algorithms are used. The refusal to build regularizing algorithms must either be clearly justified, or appropriate smoothing additives must be used in the minimized functional. Otherwise, the potential reader may be confused.