

To the Editorial Board of
Siberian Electronic Mathematical Reports

Review of the manuscript

”Determination of a coefficient and kernel in a d -dimensional fractional integrodifferential equation”

A.A. Rahmonov

This paper is devoted to the inverse problem for one integro-differential equation. The type of problem under consideration is obtained by considering the fractional derivative in the system. The Caputo fractional derivative is considered in the paper. Global in time existence and uniqueness theorems for this inverse problem are the main results. Paper has the following structure. The first section is devoted to the formulation of the problem and obtained results. In the second section preliminary results are given and the existence and uniqueness of the direct problem are considered. The local existence and global uniqueness of the solution of the inverse problem is established in the section 3. Section 4 contains the proof of global in time existence theorem. And finally, in section 5 the example of the inverse problem is considered.

The correctness of this paper is beyond doubt, since the studied fractional problem is a generalization of known results on the problem under consideration and results related to fractional calculus. The main results is obtained based on the Fourier method and Banach fixed point theorem. The calculations performed by authors look correct.

The main open question for the reviewer remained the classical question associated with the use of fractional derivatives in well-known problems. Why does the author of the paper used Caputo fractional derivative? Why not some other one? One can also write many other papers later, changing the derivative. Are there any explanations for this choice? It would be desirable to add an explanation of this fact to the introduction.

The paper ”Determination of a coefficient and kernel in a d -dimensional fractional integrodifferential equation” by A.A. Rahmonov can be published in the Journal ”Siberian Electronic Mathematical Reports”.