

MSC: 65J22, 68U10

DOI: 10.21538/0134-4889-2016-22-2-8-17

**DISCRETIZATION OF A NEW METHOD FOR LOCALIZING
DISCONTINUITY LINES OF A NOISY TWO-VARIABLE FUNCTION**

Received January 15, 2016

A. L. Ageev, T. V. Antonova

We consider the ill-posed problem of localizing (finding the position of) lines of discontinuity of a noisy function of two variables. New regularizing methods of localization are constructed in a discrete form. In these methods, the averaging kernel is varying, which simplifies the implementation of the algorithms. We obtain estimates for the localization error of the methods and for their separability threshold, which is another important characteristic.

Keywords: ill-posed problem, localization of singularities, line of discontinuity, regularization, discretization.

A.L. Ageev, Dr. Phys.-Math. Sci., Krasovskii Institute of Mathematics and Mechanics, Ural Branch of the Russian Academy of Sciences, Yekaterinburg, 620990 Russia; Ural Federal University, Yekaterinburg, 620002 Russia, e-mail: ageev@imm.uran.ru.

T.V. Antonova, Dr. Phys.-Math. Sci., Krasovskii Institute of Mathematics and Mechanics, Ural Branch of the Russian Academy of Sciences, Yekaterinburg, 620990 Russia, e-mail: tvantonova@imm.uran.ru.

Cite this article as:

A. L. Ageev, T. V. Antonova. Discretization of a new method for localizing discontinuity lines of a noisy two-variable function, *Trudy Inst. Mat. Mekh. UrO RAN*, 2016, vol. 22, no. 2, pp. 8–17.