Vol. 21 No. 4

## A SOLUTION CLASS OF THE EULER EQUATION IN A TORUS WITH SOLENOIDAL VELOCITY FIELD. II

## V. P. Vereshchagin, Yu. N. Subbotin, N. I. Chernykh

Received December 5, 2014

We study a problem on solutions  $(\mathbf{V}, p)$  of the Euler equation with solenoidal velocity field  $\mathbf{V}$  in a torus D, which is similar to the problem considered in the authors' previous paper 2014. Now, the problem is considered in the class of vector fields  $\mathbf{V}$  whose lines coincide with lines of latitude of tori embedded in D with the same circular axis. Conditions are found under which this problem is solvable, and solutions are found too.

Keywords: scalar and vector fields, Euler equation, divergence, curl.

V. P. Vereshchagin Dr. Phys.-Math. Sci., Prof. .

Yu. N. Subbotin Dr. Phys.-Math. Sci., RAS Corresponding Member, Prof., Krasovskii Institute of Mathematics and Mechanics, Ural Branch of the Russian Academy of Sciences, Yekaterinburg, 620990 Russia, e-mail: yunsub@imm.uran.ru.

**N. I. Chernykh** Dr. Phys.-Math. Sci., Prof., Krasovskii Institute of Mathematics and Mechanics, Ural Branch of the Russian Academy of Sciences, Yekaterinburg, 620990 Russia, e-mail: Chernykh@imm.uran.ru.

Cite this article as:

V. P. Vereshchagin, Yu. N. Subbotin, N. I. Chernykh, A solution class of the Euler equation in a torus with solenoidal velocity field. II, *Tr. Inst. Mat. Mekh. UrO RAN*, 2015, vol. 21, no. 4, pp. 102–108.