

1051-35-64

Anatoli Babin (ababine@math.uci.edu), Department of Mathematics, The University of California, Irvine, CA 92697-3875, **Alexei Ilyin** (ilyin@spp.keldysh.ru), Keldysh Institute of Applied Mathematics, Russian Academy of Sciences, Miusskaya Sq. 4, Moscow, 125047, Russia, and **Edriss S. Titi*** (etiti@math.uci.edu), Department of Computer Science & Applied Math, The Weizmann Institute of Science, 76100 Rehovot, Israel. *On the Regularization Mechanism for the Periodic Korteweg-de Vries Equation.*

We employ the averaging method for explaining the regularization mechanism and proving global existence, uniqueness, and Lipschitz continuous dependence on the initial data of solutions to the periodic Korteweg–de Vries equation in the Sobolev spaces \dot{H}^s for $s \geq 0$. For solutions with initial data in L_2 we also show the Lipschitz continuous dependence of these solutions with respect to the initial data as maps from \dot{H}^s to \dot{H}^s for $s \in (-1, 0]$. (Received August 11, 2009)