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Evolution of a Whitham zone in the Korteweg-de Vries theory. (English. Russian original)

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Consider the Korteweg-de Vries-Burgers equation with low viscosity $\mu > 0$, (1) $u_t + u_{xxx} + uu_x + \mu u_{xx} = 0$, $|\mu u_{xx}| \ll |u_{xxx}|, |uu_x|$. The boundary conditions are $u \rightarrow A_{\pm}$, $x \rightarrow \pm\infty$. The evolution of an oscillatory zone is described in the framework of the Bogolyubov-Whitham averaging method using a set of cnoidal travelling waves of (1). The present paper is devoted to a numerical study of the evolution of an oscillatory zone in the “step decay” when there is a low viscosity present.

Reviewer: [J.H.Tian](#)

MSC:

65Z05 Applications to the sciences

35Q99 Partial differential equations of mathematical physics and other areas of application

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Whitham zone; Korteweg-de Vries theory; Korteweg-de Vries-Burgers equation; oscillatory zone; Bogolyubov-Whitham averaging method; travelling waves