Suchkova D. A. (UUST, Ufa, Russia). **On Generalized Stochastic Korteweg-de Vries Equations with Time Noise.**

Let $V(t)$, $t \in [0,T]$, be a random process with continuous realizations with probability 1. For the generalized stochastic Korteweg-de Vries (GKdV) equation $d(u)_t + [(f(u))_x + u_{xxx}]dt + u_{xxx} * dV(t) = 0$, with noise in the dispersion term in the form of a symmetric integral [1], where $u(x,0) = u_0$, $(x,t) \in R \times [0,T]$, the following result is obtained. Via $Ai(z) = \frac{1}{\pi} \int\limits_0^\infty \cos\left(\frac{y^3}{3} + yz\right) dy$ will denote the Airy function of the first kind [3].

Theorem. *Let $g(x,t)$ be an arbitrary solution of the deterministic generalized GKdV equation: $g_t + gg_x + g_{xxx} = 0$, then the function*

$u(x,t,V(t)) = \pi^{-1/2}(3V(t))^{-1/3} \int\limits_{-\infty}^{+\infty} Ai\left(\frac{x-y}{(3V(t))^{1/3}}\right) g(x,t)\, dy.$

is the solution of the above stochastic GKdV equation.

Note. The case when the noise acts simultaneously on the nonlinear and dispersion terms of GKdV, cases with noise in the nonlinear term or on the right side of the equation are studied in this work. The results for the classical equation were studied in [2].

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