Suchkova D. A. (UUST, Ufa, Russia). **On the Cauchy problem for generalized stochastic and deterministic Korteweg-de Vries equations.**

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 $d(u)_t + (f(u))_x * dV(t) + u_{xxx}dt = 0\,(\mathbf{1})$, with noise in the nonlinear 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.

Theorem. *Let the function* $u(x,t,V(t)) = (3t)^{-\frac{1}{3}} \int\limits_{-\infty}^{+\infty} Ai\left(\frac{x-y}{(3t)^{\frac{1}{3}}}\right) u(y,0,V(t))\, dy\,(\mathbf{2})$, *where* $u(y,0,V(t))$ *is the solution to the Cauchy problem for the equation* $\frac{\partial}{\partial v}u(x,t,v)|_{v=V(t)} + f'(u(x,t,V(t)))\frac{\partial}{\partial x}u(x,t,V(t)) = 0$ *for* $t = 0$, *with the initial condition* $u(x,0,0) = u_0(x)$, $f(u) \in C^2(R)$, $u_0(x) \in C^3(R)$, *then the Cauchy problem for the original equation (1) has a solution* $u(x,t,V(t))$ *[2], which is represented as relation (2).*

Note. The case when noise affects both the nonlinear and dispersion terms, cases with noise in the dispersion term or on the right-hand side of the equation are studied in [3], [4].

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