Bovkun V. A. (Ekaterinburg, Russia) — **The connection between infinite-dimensional stochastic problems and deterministic problems for probabilistic characteristics.**

We consider the Cauchy problem for infinite-dimensional stochastic equations:

$$X(t) = \xi + \int_0^t \mathcal{A}(s, X(s))\, ds + \int_0^t B(s, X(s))\, dW(s), \quad t \in [0, T],$$

with an operator $\mathcal{A} = \mathcal{A}(t, x) = Ax + F(t, x)$, $t \in [0, T]$, $x \in H$, where A is the generator of a C_0-class semigroup of operators in a Hilbert space H, $F : [0, T] \times H \to H$ and $B : [0, T] \times H \to \mathcal{L}(H)$ generally are nonlinear mappings, $\{W(t),\ t \geq 0\}$ is an H-valued Q-Wiener process with respect to the filtration $\{\mathcal{F}_t,\ t \geq 0\}$ defined on the probability space $(\Omega, \mathcal{F}, P)$, and ξ is a $\mathcal{F}_0$-measurable H-valued random variable. It was shown that under additional requirements on F and B there is a unique Markov process $\{X(t), t \geq 0\}$, which is a mild solution of the problem (1) (see, for ex., [1]). We prove that the process $\{X(t), t \geq 0\}$ has continuous trajectories and finite local moments of the first and second order. Based on these facts infinite-dimensional analogs of forward and backward Kolmogorov equations for probabilistic characteristics of the process are received.

REFERENCES

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