

Karachanskaya E. V. (Khabarovsk, Russia) — **Modeling of dynamics for stochastic system with probability 1**

Programmed Control with Probability 1 (PCP1) is a control for stochastic system which provides nonsensibility of this system to random perturbations and keeps constant values for the given functions depending on the system attitude at any moment with the probability equal 1.

The PCP1 features are: a) instantaneous constraint feedback control; b) ; c) the nonlinear dynamic system doesn't need linearization.

For the stochastic nonlinear dynamic system described by the Itô's SDE with jumps we construct the PCP1 allowing with probability 1 to provide preservation of a preset value of the function depending on her existential situation [1]. The algorithm of construction of PCP1 is based on the generalized Itô – Venttsel' formula [2]. Various examples illustrated with numerical modeling [3] are represented.

REFERENCES

1. *Karachanskaya E.V.* Construction of Programmed Controls for a Dynamic System Based on the Set of its First Integrals. J. of Math. Sc., 2014. Vol. 199(5). Pp. 547–555.
2. *Karachanskaya E.V.* The generalized Itô – Venttsel' formula in the case of a noncentered Poisson measure, a stochastic first integral, and a first integral. Siberian Adv. in Math., 2015. Vol.25(3). Pp. 191–205.
3. *Averina T.A., Karachanskaya E.V., Rybakov K.V.* Statistical modeling of random processes with invariants. Proceedings – 2017 International Multi-Conference on Engineering, Computer and Information Sciences, SIBIRCON, November, 2017. Pp. 34–37.