

ESTIMATION OF THE EVOLUTION OF A RANDOM SET

Received September 25, 2015

B. I. Anan'ev

An estimation problem for a random set that is a reachability domain of the Ito differential equation with respect to its initial data is considered. The Markov property of the reachability set in the space of closed sets is proved. For the purposes of numerical solution, a random initial set of the differential equation is approximated by a finite set on an integer multidimensional grid, and the differential equation is replaced by a multistep Markov chain. Examples are considered.

Keywords: stochastic differential equation, Markov chain, random set.

B.I. Anan'ev, Dr. Phys.-Math. Sci., Krasovskii Institute of Mathematics and Mechanics, Ural Branch of the Russian Academy of Sciences, Yekaterinburg, 620990 Russia; Ural Federal University, Yekaterinburg, 620002 Russia, e-mail: abi@imm.uran.ru.

Cite this article as:

B. I. Anan'ev. Estimation of the evolution of a random set, *Trudy Inst. Mat. Mekh. UrO RAN*, 2016, vol. 22, no. 1, pp. 14–25.