

Makarova A.V. (Voronezh, Russia) — Stochastic differential inclusions with current velocities having decomposable right-hand sides.

An existence of solution theorem is obtained for stochastic differential inclusions given in terms of the so-called current velocities (symmetric mean derivatives, a direct analogs of ordinary velocity of deterministic systems) and quadratic mean derivatives (giving information on the diffusion coefficient) on the flat n -dimensional torus. Right-hand sides in both the current velocity part and the quadratic part are set-valued, lower semi-continuous but not necessarily have convex images. Instead we suppose that they are decomposable.

REFERENCES

1. *Nelson E.* Dynamical theory of Brownian motion, Princeton NJ: Princeton University Press. 1967. 115 p.
2. *Gliklikh Yu.E.* Global and stochastic analysis with applications to mathematical physics, Springer-Verlag London. 2011. 460 p.
3. *Азарина С.В., Гликликх Ю.Е.* О разрешимости неавтономных стохастических дифференциальных уравнений с текущими скоростями., Russian Math. Surveys, 2013, vol. 68, № 6, pp. 1139–1141.
4. *Gliklikh Yu.E., Makarova A.V.* On existence of solutions to stochastic differential inclusions with current velocities II, Journal of Computational and Engineering Mathematics. 2016. Vol. 3. No. 1. P. 48-60.
5. *Kamenskii M., Obukhovski V.* Condensing Multivalued Maps and Semilinear Differential Inclusions in Banach Spaces, P. Zecca. Berlin-New York: Walter de Gruyter, 2001.- 231 p.
6. *Гихман И.И.* Теория случайных процессов, Том 1. М.: Физматлит, 1971.- 664 с.