

Mashkov E. Yu. (SWSU, Kursk, Russia) — **On approach for studying stochastic Leontieff type equations with impulse actions II.**

We study a system of Ito stochastic differential equations having a degenerating constant linear operator in the left hand side. The right hand side of the system contains a constant linear operator and a deterministic term depending on the time only as well as impulse actions (see [1]). We assume that the diffusion coefficient of this system is described by a square matrix depending on time only. These systems of equations arise in many applications. The system we study can be reduced to a canonical form by applying a transformation of a regular matrix pencil to a generalized real Schur form (see [2]). The study of the obtained canonical equations requires considering the derivatives of rather higher orders for free terms including the Wiener process. Because of this, in order to differentiate the Wiener process, we apply the Nelson mean derivatives (see [3]) for random processes and this allows us to avoid using the theory of generalized functions. As a result we obtain analytic formulae for solutions of equations in terms of mean derivatives for random processes.

REFERENCES

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