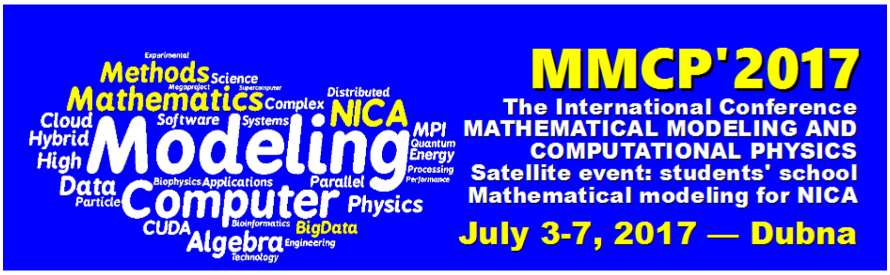

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An application of geometric methods to the one-step processes stochastization

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When modeling different physical and technical systems, they can often be modeled in the form of one-step processes. Our group has been developing a formalism of stochastization of one-step processes for quite a long time. We investigated a variety of representations of both the one-step processes, and methods of their stochastization. We have considered representations in the state vectors (combinatorial approach) and in the occupation numbers (operator approach) [1]. With stochastization of systems with control, we use a geometric approach to control theory. It would be useful to consider the geometric approach also to the methods of stochastization of one-step processes.

We have considered various variants of geometrization of the process of stochastization of one-step processes and stochastic differential equations. Approaches were considered both on the basis of Riemannian quadratic metrics [2-3] and on the basis of a more general approach of Finsler geometry [4-8].

Different approaches to geometrization of stochastic systems are considered in the paper and comparison with other methodological approaches is made.

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