

Stability and instabilities of stationary states of stochastic dynamics with time delays

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We will consider microscopic models of interacting objects (proteins in gene expression and players in evolutionary games). Time delays in our models correspond to particular mechanisms of interactions. We will show that stability of stationary states depends on the type of a time delay. In some situations time delays may change stationary states. We will discuss joint effects of random perturbations and time delays in certain dynamical systems. Our examples will involve delayed degradation of proteins in gene expression [1, 2], strategy dependent delays in evolutionary games [3, 4], and stochastic stability in three-player games [5, 6].

References

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