

## Mean-potential law in evolutionary games

*Friday, September 8, 2017 9:50 AM (20 minutes)*

We formulate two simple and intuitive criteria for evolutionary stability of pure Nash equilibria in stochastic dynamics of finite populations. Our approach is based on the mapping of continuous stochastic dynamics into discrete ones and the appropriate choice of potential functions. We present the correspondence between one-dimensional stochastic differential equations describing diffusion with a state-dependent drift and discrete-space random walks, which is exact even in finite-state spaces. This enables us to compute fixation probabilities in various stochastic dynamical systems with two absorbing states.

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