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A stochastic symbiosis model with degenerate diffusion process. (English) Zbl 1223.47043
Ann. Pol. Math. 98, No. 2, 111-128 (2010).

The author investigates a 2D system of stochastic differential equations modeling the dynamics of two species in symbiosis. Two cases of stochastic perturbation are considered: in the first case, both diffusion coefficients are positive, while in the second case, one coefficient is positive and the other one vanishes. Well-posedness, positivity and long-term behavior of solutions is studied. The results presented extend earlier work [*Ann. Pol. Math.* 97, No. 3, 257–272 (2010; [Zbl 1204.47049](#))].

Reviewer: Thomas Hagen (Memphis)

MSC:

- [47D07](#) Markov semigroups and applications to diffusion processes
- [60H10](#) Stochastic ordinary differential equations (aspects of stochastic analysis)
- [60J60](#) Diffusion processes
- [92D25](#) Population dynamics (general)

Cited in **3** Documents

Keywords:

symbiosis model; diffusion process; Markov semigroup; asymptotic stability

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