

A decomposable branching process in a Markovian environment

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A two-type decomposable branching process in random environment is considered in which particles of type 1 may produce offspring of both types while particles of type 2 may produce offspring of their own type only.

Our main assumptions are:

- particles of type 1 form a critical or subcritical branching process in a random environment,
- particles of type 2 form a critical branching process which is independent of the environment.

We focus on the asymptotic behavior of the probability of survival of this process assuming that the particles of the first type evolve either in an iid or in a Markovian random environments.