Two-sex branching process literature

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Abstract

With the purpose to describe the probabilistic evolution of populations where females and males coexist and form couples, Daley (1968) introduced the bisexual Galton-Watson branching process. Professor D. J. Daley, considering two interesting mating functions between females and males, provided necessary and sufficient conditions for the ultimate extinction of the bisexual process to occur with probability one. Since Daley's work, several papers on the extinction probability, the limiting behaviour, the statistical theory or the applications about the bisexual Galton-Watson branching process have been published, see Hull (2003). In the last years, in order to get an optimum modelling in more complex two-sex populations, new classes of discrete time two-sex (bisexual) branching processes, including models with immigration, in varying environments, in random environments, depending on the number of couples in the population, or controlled models, have been introduced and some theory and applications about them developed. Also, some general classes of continuous time two-sex branching processes have been studied, see e.g. Molina and Yanev (2003). This talk, will intended to be a survey of the literature associated with such classes of discrete or continuous time two-sex branching processes.

References

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