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Abstracts of Short Communications and Posters

Section:

12. Probability and Statistics

1991 MS Classification: 60
Wulfsohn, Aubrey, Warwick University, UK:

Branching diffusions with random offspring distributions.

Models are constructed of branching processes with random offspring distributions, and are used for diffusion approximations. The branching and environments are extended to geographic regions and a high-density particle approach is used to construct measure-valued processes which, for example, could describe biological growth and spread perturbed by a spatial white noise. The random environment gives flexibility; one may construct measure-valued processes solving the parabolic Anderson model and Wright-Fisher type equations. Uniqueness is proved by a duality argument if the initial measure is a simple infinitely-divisible point process and the branching can be desribed by a quasi-contractive semigroup. The random measure-valued process is determined by a cumulant equation, the coefficient of the linear term being a random distribution independent of the branching mechanism.