A Branching Cell Population Model for Fission Yeast

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Abstract

We use multi-type branching processes to construct a branching version of the Bell-Anderson model for fission yeast populations. We consider a population of cells, where each cell inherits a type at birth. This type is assumed to be the number of scars in a simple model. A general model is investigated by considering a two-dimensional type: the birth size of the cell and the number of scars over it. We prove the existence of the Malthusian parameter and the stable type distribution which we get analytically under additional assumptions.

Keywords: Branching processes, Malthusian parameter, stable type distribution, fission yeast.

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