

Asymptotic properties of some phenotypic evolution models

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Abstract

We present an individual based model of phenotypic evolution which includes random and assortative mating process of individuals. By increasing the number of individuals to infinity we obtain a nonlinear transport equation, which describes the evolution of distribution densities of phenotypic trait. In the case of random mating we show that this equation has one-dimensional attractor. In the case of assortative mating we expect convergence of the phenotype profile to multimodal limit distributions. This result suggests that assortative mating can lead to polymorphic population and adaptive speciation. The talk is based on a manuscript: R. Rudnicki and P. Zwolenski, Model of phenotypic evolution in hermaphroditic populations, *J. Math. Biol.* (to appear).