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Asymptotic Behaviour of an Infinitely-Many-Alleles Model with Symmetric Overdominance

In this talk, we consider the limiting distributions of $\pi_{\lambda,\theta}$, the stationary distribution of infinitely-many-alleles diffusion with symmetric overdominance [1]. In [2] the large deviation principle for $\pi_{\lambda,\theta}$ indicates that there are countably many phase transitions for the limiting distribution of $\pi_{\lambda,\theta}$, and the critical points are $\lambda = k(k+1), k \geq 1$. The asymptotic behaviours at critical points , however, are unclear. We will provide a definite description of the critical cases.

References

[1] Ethier,S.N. and Kurtz,T.G.(1998).Coupling and ergodic theorems for Fleming-Viot processes.Ann.Probab,26(2),533-561.
[2] Feng,S.(2009). Poisson-Dirihclet distributions with small mutation rate. Stochastic Process.Appl.,119(6),2082-2094.