SFB 680

MOLECULAR BASIS OF
EVOLUTIONARY INNOVATIONS

Jeong-Man Park

Department of Physics, The Catholic University of Korea

Population Size Dependence of Evolutionary Paths in Bacteria

We consider the evolution of large but finite populations on arbitrary fitness landscapes. We describe the evolutionary process by a Markov, Moran process. We show that to O(1/N), the time-averaged fitness is lower for the finite population than it is for the infinite population. We also show that fluctuations in the number of individuals for a given genotype can be proportional to a power of the inverse of the mutation rate. Finally, we show that the probability for the system to take a given path through the fitness landscape can be non-monotonic in system size.

July 24, 14:00

Institute for Theoretical Physics, Zülpicher Str. 77, Seminar Room

Host: Joachim Krug

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