明治大学先端数理科学インスティテュート

MEIJI UNIVERSITY   **MIMS**

第43回
MIMS Mathematical Biology Seminar
(This is a renewal seminar series of former GCOE MEE seminars.)

2013年11月5日(火) 14:30〜16:00
明治大学中野キャンパス822
Nov 5, 2013. 14:30〜16:00 Meiji Univ. Nakano campus 822

JR中央線快速・総武線、東京メトロ東西線／中野駅 下車 北口より徒歩約8分
詳しくは、http://www.meiji.ac.jp/koho/campus_guide/nakano/access.htmlをご覧下さい.

First Passage Time to Allopatric Speciation

Ryo Yamaguchi (Kyushu University)

Abstract: Allopatric speciation is a mechanism that can lead to the creation of novel species; it is caused by the accumulation of genetic differences between populations while they are geographically isolated. Here, we studied a simple stochastic model for the time until speciation caused by geographic isolation in fragmented populations that experience recurrent but infrequent migration between sub-populations. We assumed that mating incompatibility is controlled by a number of loci that behave as neutral characters in the accumulation of novel mutations within each population. Genetic distance between populations was defined as the number of incompatibility-controlling loci that differ between them. Genetic distance increases through the separate accumulation of mutations in different populations, but drops after a successful migration event followed by genetic mixing between migrants and residents. We calculated the time to allopatric speciation, which occurs when the genetic distance exceeds a specified threshold. If the number of invasive individuals relative to the resident population is not very large, diffusion approximation provides an accurate prediction. There is an intermediate optimal rate of migration that maximises the rate of species creation by recurrent invasion and diversification. We also examined cases that involved more than two populations.

参加自由です. 皆様のお越しをお待ちしております.

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