明治大学グローバルCOEプログラム【現象数理学の形成と発展】

第19回 MEE SEMINAR

MATHEMATICAL ECOLOGY & EVOLUTION

2010年5月11日(火) 14：40～16：10

明治大学生田キャンパス第二校舎A館：A207

小田急小田原線　「生田駅」から徒歩10分
又は「向ケ丘遊園」駅北口から「明治大学正門前」行きバスで15分終点下車
詳しくは、http://www.meiji.ac.jp/koho/campus_guide/ をご覧下さい

May 11, 2010, 14:40～16:10　　Meiji Univ, Ikuta campus A207

Modeling dynamics of plant RNA viral population in a host plant

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(The University of Tokyo)

Abstract:

Most plant RNA viruses colonize host leaf tissues by moving from infected cells to uninfected cells through channels called “plasmodesmata”, which traverse the cell walls and connect cytoplasms of adjacent cells. We recently found that only 5-6 genomes of a plant RNA virus can establish infection after cell-to-cell movement, by statistically analyzing our experimental data. This limitation on the number of viral genomes that establish infection was expected to work as genetic bottlenecks. Using the size of genetic bottlenecks as a variable, we developed a simple mathematical model that describes dynamics of viral population in a host plant. This model explained the possible important role of the bottlenecks in enhancing selection on variations in viral trans-acting genes, of which products are shared among viral intracellular population; it also indicated several possible requirements for maintenance of defective RNAs in a viral population in a host plant. Now we are trying to obtain means to modulate the size of bottlenecks, with the ultimate aim to establish effective systems to control and utilize plant RNA viruses basing on our mathematical model.

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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