

PHYSICAL MATHEMATICS SEMINAR

Evolution in Motion

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ABSTRACT:

Motion is a key element of many living systems and has been an integral part of evolution from the moment life arose in the oceans. While biological facets of evolution are concerned with the effects of a fluid and moving background on chemistry and composition, evolution also has physical components which can interact nontrivially with motion. It is therefore important to understand how motion, which can induce changes in the population structure, affects the balance between the physical and biological components of evolution. Motion is particularly relevant on evolutionary timescales because it can lead to widespread changes in population structure as mutations march toward fixation or extinction. Here I will discuss work on simple stochastic, finite-population models of the evolutionary process which focus only on the effect of motion on natural selection. Several scenarios involving different types of structure and motion hint at some overall rules about how motion affects selection and reproduction. I will also cover extensions to more nuanced models, such as evolutionary game theory.

TUESDAY, APRIL 4, 2017

2:30 PM

Building 2, Room 147

*Reception following in Building 2, Room 290
(Math Dept. Common Room)*

<http://math.mit.edu/seminars/pms/>