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明治大学先端数理科学インスティテュート
現象数理学研究拠点(CMMA)

MIMS | **CMMA, Meiji**

MIMS/CMMA Seminar on Self - Organization

第７回 自己組織化セミナー

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明治大学中野キャンパス ６階 研究セミナー室

How can one measure the interaction strength in systems of living organisms?
Bertrand Roehner (University of Paris)

Abstract

For any system, one of its most crucial characteristics is the strength of the interaction which binds together its elements. From an ideal gas where gas molecules have very rare and short-range interactions, to a family or to the brain where the neurones have permanent long-range interactions, there is broad range of cases.

A key-problem is how to measure the strength and range of the interaction because these two characteristics deeply affect the properties of the system. So far, this problem is largely unsolved. In this talk, for reasons that I will explain, I will focus on populations of insects and of micro-organisms. For most of these systems we do not even know whether there is an interaction or not. For instance, for a population of male drosophila or of euglenas (a green micro-organism) what test can we use to determine if there is an interaction?

This raises also the question of genuine versus spurious interactions. Two types of spurious interactions will be described: the hydrodynamical imitation effect and the side-walk effect. Usually observation of a collective behavior is evidence of an interaction. I will describe two cases: the clustering of ants and the formation of networks of euglenas. But here too one must distinguish between genuine collective behavior (meaning that it really implies an interaction) and spurious collective behavior due to an external factor.

参加自由です。皆様のお越しをお待ちしております。

・中野キャンパスへのアクセス

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

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