

Joint Event

APPLIED MATHEMATICS COLLOQUIUM
and
PHYSICAL MATHEMATICS SEMINAR

TIME IN SELF-ORGANIZATION PHENOMENA

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ABSTRACT:

In biology most of the phenomena, whether at the scale of individual development or at that of Darwinian evolution, are temporally extended. Taking into account repeated iterations and sequential events is needed for any understanding of the self-organization processes at work in these domains. With two simple examples in plant growth: leaf venation and the formation of the phyllotactic spirals, I will discuss how characteristic structures emerge out of temporally iterated simple processes. Remarkably in both cases the resulting patterns have specific geometrical properties that would not be obtained without a role of the whole history of the growth. In physics, taking into account history is obviously usual in cosmology or for the investigation of growth patterns. However it is not usually considered as relevant for the dynamics of single particles. I will argue that recent results on macroscopic entities associating a particle to waves it has emitted in the past could open this question.

MONDAY, SEPTEMBER 16, 2013

4:30 PM

Building E17, Room 122

*Reception at 4:00 PM in Building E17, Room 401A
(Math Dept. Common Room)*

Applied Math Colloquium: <http://www-math.mit.edu/amc/fall13/>
Math Department: <http://www-math.mit.edu>

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