



BIOCOMPLEXITY 9

multiscale modeling of multicellular systems

BIOCOMPLEXITY: THE INTERFACE BETWEEN SELF-ORGANIZATION & EVOLUTION

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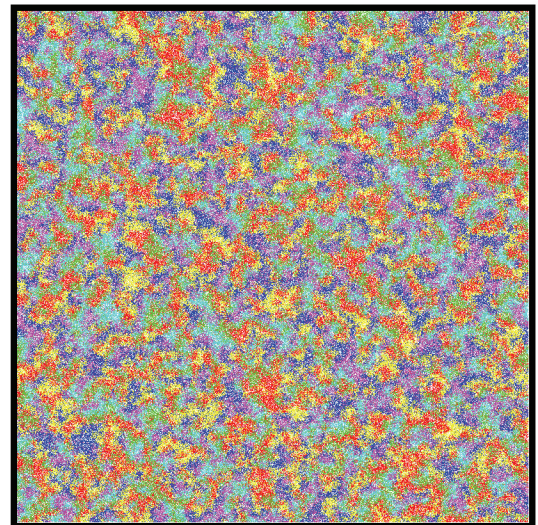
Monroe County Public Library Auditorium

DARWINIAN EVOLUTION, i.e. mutation and selection of replicators, is a very powerful mechanism to generate complex structure and dynamics as has been abundantly demonstrated *in vivo*, *in vitro*, and *in silico*. On the other hand, local interactions of simple entities may lead to complex structure and dynamics.

In this talk, we will show how the interface between such self-organizing complexity and Darwinian evolution enriches both the evolutionary process and the dynamics of self-organizing processes.

In particular, we will discuss how, on the one hand, the evolution of complex regulation depends on self-organizing processes at various scales. On the other hand, we show how the entire life-cycle of a simple organism can be understood in terms of self-organization from simple interactions between 'cells' provided we take regulated cell differentiation into account.

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