

POZVÁNKA na SEMINÁŘ

v úterý 27. října v 13:30
na posluchárně č. 5.068 v budově PřF UPOL, 17. listopadu č. 12.

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Two Sides of Emergent Computing: Computational Experiments & Entropy Measures

Abstrakt: Relatively recently scientists started to use massively-parallel computing thanks to the development of computers. This allowed researchers to define and explore computational models that express emergent behavior: examples span from physics across chemistry, biochemistry, and biology to medicine. Virtually all scientific disciplines could benefit from the application of emergent computing, which itself is based on short-range interactions within massively-parallel systems.

Interactions of systemic parts within emergent systems inevitably lead to the observed long-range systemic organization. Multiscale emergent systems operate in biology, where each layer utilizes a different constituting matrix & different micro-evolution rule(s) to generate the next layer of emergents. Each novel type of emergent constitutes the next-level matrix of the emergent system: biomolecules, cellular components, cells, tissues, organs, and bodies.

The lecture would provide a starting kit for simulation of emergent systems with links to software and literature for further study. The principles of the design and functioning of emergent systems are highly counter-intuitive because they utilize massive-parallelism. Emergent systems contradict our daily experiences and common sense. Seemingly complex phenomena could be traced back to a combination of fairly simple matrix and microevolution rule(s).

K účasti jsou zváni jak členové katedry, tak všichni učitelé, vědeckí pracovníci
a studenti, kteří mají o problematiku zájem.

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