

Pozvánka na přednášku OP VK

An Introduction to Systems and Synthetic Biology

Přednášející: Jesus Miro-Bueno

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Abstrakt přednášky:

Systems biology is a scientific discipline examining biological processes, systems and its complex interactions using robust and precise mathematical and physical models. The goal of these models is to describe, understand and predict the dynamic behaviour of these biological processes and systems.

Synthetic biology is a discipline half-way between science and engineering. It is concerned with the design, construction and modification of biomolecular systems and organisms to perform specific functions. These synthetic biological systems have the potential to be used into the clinic. The operation of the synthetic biological systems involves intracellular processes but also social interactions in microbial communities and engineered bacteriophages.

We will present in this seminar a brief introduction to these fields. We will explain basics concepts such as gene expression and transcriptional feedback loops, and how to model them. We will also review some of the major works on synthetic biology devices such as logic gates, bistables and oscillators.