



ΟΜΙΛΙΑ

“Automata Theory, Languages and Computation - DNA Computing Paradigm”

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ΠΕΡΙΛΗΨΗ – ABSTRACT

The first part of the lectures will discuss the classical theory of automata and formal languages. The second part of the course will present new computing paradigms, DNA computing and molecular programming. Major challenges in DNA computing are constructions of models according to the Chomsky hierarchy, e.g. Turing machines, pushdown automata, and finite automata. In the lecture, the current state of the art and new trends in the DNA computing paradigm will be presented. The main problem for developing a biomolecular computer is its complexity – increasing the number of a states and symbols of biomolecular computer. This course presents ideas and concepts to increase the complexity of calculations performed by biomolecular computers.

Content:

- Introduction to automata theory, languages, and computation.
- Formal definition of finite automata and its biomolecular implementation.
- Current state of the art in the DNA computing.
- Theoretical models of DNA computation.
- Generating symbols for biomolecular computers

Short Bio:

Sebastian Sakowski received his Ph.D. degree in computer science from the Silesian University of Technology (Poland). He completed foreign research internships at Duke University (USA) and Justus Liebig University (Germany). He is currently an assistant professor at the Faculty of Mathematics and Computer Science of the University of Lodz (Poland). His current interests include automata theory, DNA computing and bioinformatics.

Παρασκευή 4 Απριλίου 2025

13:00 -14:00

Αίθουσα Σεμιναρίων