▶ MARTIN KUTRIB, *Nature-Based Problems in Cellular Automata.*
Institut für Informatik, Universität Giessen, Germany.
E-mail: `kutrib@informatik.uni-giessen.de`.

Cellular automata were proposed by John von Neumann in order to solve the logical problem of nontrivial self-reproduction. From this biological point of view he employed a mathematical device which is a multitude of interconnected automata operating in parallel to form a larger automaton. His famous early result reveals that it is logically possible for such nontrivial computing device to replicate itself ad infinitum. Nowadays (artificial) self-reproduction is one of the cornerstones of automata theory, which plays an important role in the field of molecular nanotechnology. We briefly summarize some important developments on cellular automata as model to investigate further nature-based problems. On our short tour on the subject we will address the French Flag Problem, the Firing Squad Problem in growing cellular arrays, oblivious cellular automata, and the fault-tolerant Early Bird Problem.