

Two heuristic algorithms Omega and Spread are described in this thesis. Algorithm Omega searches for maximal attractors of given cellular automaton. Attractors are constructed as forward images of the join of simple invariant subshifts of finite type, which are contained in the maximal attractor. This join is still contained in the maximal attractor. Afterwards the algorithm searches for a invariant image of this join. The maximal attractor was found if the invariant image was found and if such image has special property of decreasing preimages. The construction of maximal attractor was generalized to shift-invariant attractors by algorithm Spread, which searches for spreading sets of given cellular automaton. There are three undecidable questions. The search for the invariant image, test if such invariant image has the property of decreasing preimages and the search for spreading sets of given cellular automaton. Both algorithms has been tested on the class of elementary cellular automata.