Alternative modelling approaches

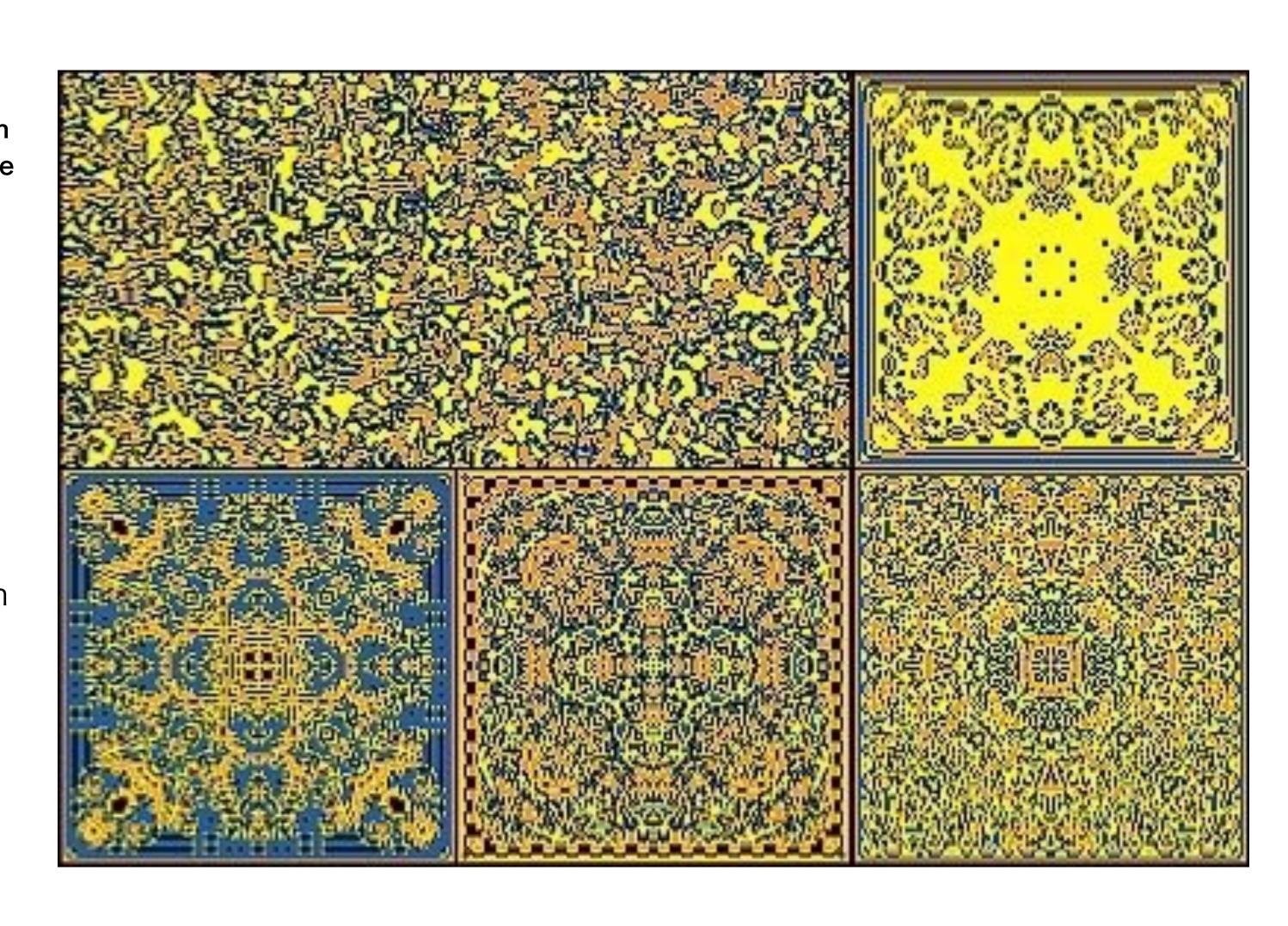
cellular automata models

video <u>fragment</u> from Stephen Hawkings The Meaning of Life

Conway was interested in a problem presented in the 1940s by mathematician John von Neumann, who attempted to find a hypothetical machine that could build copies of itself. The Game of Life emerged as Conway's successful attempt to drastically simplify von Neumann's ideas. From a theoretical point of view, it is interesting because it has the power of a universal Turing machine: that is, anything that can be computed algorithmically can be computed within Conway's Game of Life.



game of life



Conus textile exhibits a cellular automaton pattern on its shell.

Alternative modelling approaches

cellular automata models - hydrodynamic applications

Rule based deterministic model

• Each cell evolves through time according to very simple rules based on

contents of neighbouring cells

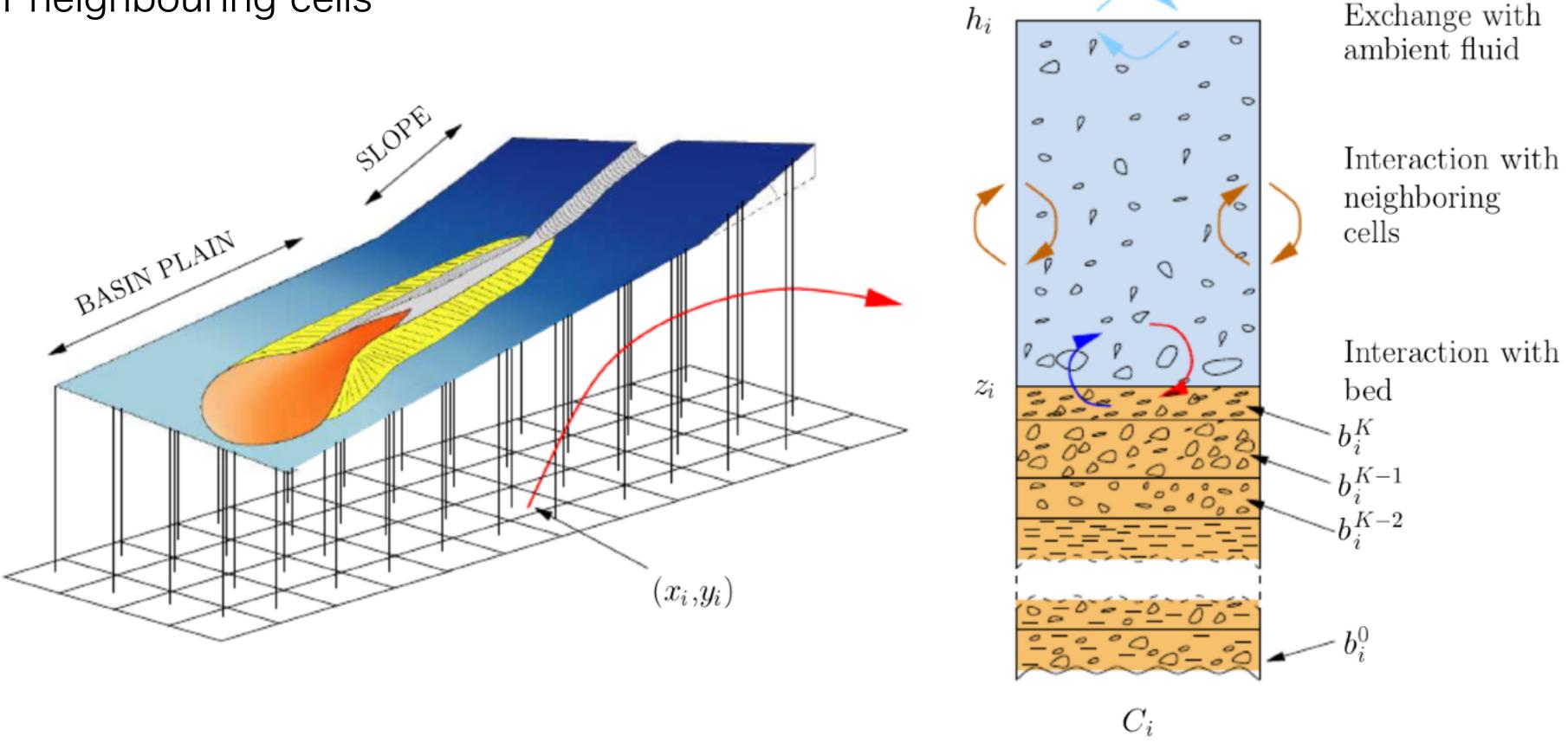


Fig. 1 – Discretization domain and rules applied to each cell.