

The "Physics" of Automaton Universes

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A universe created by computation can be perceived "from within", i.e. with methods and procedures available in that universe. The defining features of intrinsic perception or endophysics are reviewed. In analogy to quantum theory, the structure of the "experimental" logic of a computational universe can be investigated by lattice theory. Toy universes are constructed which show similarities to quantized systems, in particular in view of the Einstein-Bohr debate on the "nature of physical reality." Finally, classical metamathematical paradoxa are translated into the endophysical context. The concept of intrinsic indeterminism subsumes undecidability and incompleteness results.