

## Finite automata models in Quantum Theory.

ABSTRACT: Every automaton (a letter-to-letter transducer) whose input/output alphabets consist of  $p$  symbols produces a 1-Lipschitz map from  $p$ -adic integers to  $p$ -adic integers; and vice versa, every that map can be performed by a suitable automaton. Every that map can be regarded as a discrete causal map. By further developing of ideas of our earlier works «Quantization causes waves: Smooth finitely computable functions are affine» (DOI: 10.1134/S2070046615030012), and «Discreteness causes waves» (DOI: 10.2298/FUPCT1603143A) we derive some new results which may serve a base for future automata interpretation of Quantum Theory.