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Analysis of one-dimensional linear hybrid cellular automata

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Abstract

The paper studies theoretical aspects of one dimensional linear hybrid cellular automata field. General results concerning the characteristic polynomials of such automata are pre synthesis algorithm for determining such a linear hybrid cellular automaton with a specific polynomial is given, along with empirical results and a theoretical analysis. Cyclic boundary conditions are defined and related to the more common null boundary cellular automata. An explicit relationship between a cellular automaton and its corresponding linear feedback shift register is derived.

Index Terms

Inspection

Controlled Indexing

[Galois fields](#) [cellular automata](#) [polynomials](#)

Non-controlled Indexing

[characteristic polynomial](#) [characteristic polynomials](#) [common null boundary cellular automata](#) [cyclic boundary cellular automata](#) [finite Galois field](#) [linear feedback shift register](#) [one dimensional linear hybrid cellular automata](#) [probabilistic synthesis algorithm](#) [analysis](#) [theoretical aspects](#)

Author Keywords

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