

Automatic sequences and curves over finite fields

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Christol's theorem states that a power series over a finite field is an algebraic function if and only its coefficient sequence can be produced by an automaton. The proof is by elementary combinatorics and linear algebra, but hidden in the argument there is geometric information about a curve on which the function is defined. I make this explicit by proving a link between the complexity of the automaton and the geometry of the curve.

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