The Cremona group over the field with two elements

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Abstract

The (plane) Cremona group is the group of birational transformations of the projective plane. Classically, this group has been studied over algebraically closed fields. In this case, a theorem by Noether and Castelnuovo states that the group is generated by linear automorphisms and the standard quadratic involution given by $(x, y) \longmapsto (1/x, 1/y)$. For non-closed fields, such a simple set of generators does not exist. In this talk, I will describe a generating set for arbitrary perfect fields (using Sarkisov links, a notion coming from birational geometry), and describe them in a (very) explicit way for the field with two elements.