Bijective Cremona transformations of the plane

Abstract
The study of the birational automorphisms of the plane has a history of more than a hundred years. These automorphisms are invertible maps defined by polynomials, and several significant results have been established over the field of complex numbers, or more generally over perfect fields. Over a finite field, we call such a map bijective if it induces a bijection on the points defined over the ground field. Given an abstract permutation, can we always realize it via a bijective map? In this talk, I will give an almost full answer to this question. This is joint work with Shamil Asgarli, Masahiro Nakahara, and Susanna Zimmermann.