آگهی سخنرانی

Which Rational Maps are Birational?

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We develop form the beginning the theory of rational/birational maps over reduced, but not necessarily irreducible, projective varieties in arbitrary characteristic. A numerical invariant of a rational map is introduced, called the Jacobian dual rank. It is proved that a rational map in this general setup is birational if and only if the Jacobian dual rank attains its maximal possible value. Even in the "classical" case where the source variety is irreducible there is some gain for this invariant over the degree of the map as it is, on one hand, intrinsically related to natural constructions in commutative algebra and, on the other hand, is effectively straightforwardly computable. Applications are given to results so far only known in characteristic zero. In particular, the surprising result of Dolgachev concerning the degree of a plane polar Cremona map is given an alternative conceptual angle.

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