

Affine Lüroth Problems

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The study of subfields of rational function fields has an “affine” counterpart in the study of subrings of polynomial rings or geometrically, the study of affine varieties dominated by an affine space. A typical problem is to look for conditions which ensure that the subring is itself a polynomial ring or isomorphic to a standard subring, for instance, the ring of invariants of a finite group action.

I will describe joint work with M.Koras leading to the result that any two-dimensional quotient of affine n -space by the action of a reductive group is, as in the linear case, isomorphic to the quotient of the affine plane by the action of a finite group.