

Amitsur-Small Rings

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Abstract

Amitsur and Small raised the question of whether the intersection of a maximal ideal in $D[x_1, \dots, x_n]$ with $D[x_1, \dots, x_m]$ for $m < n$ results in a maximal ideal of the latter, where D is a given division ring. We provide a negative answer to this question by producing a large family of examples. In fact, we show that in most quaternion division rings belong to this family.