Bell, Howard E.

Commutativity of rings with constraints on commutators. (English) Zbl 0606.16023

Result. Math. 8, 123-131 (1985).

Let F denote a commutative ring, $F < X, Y >$ the corresponding ring of polynomials in two non-commuting indeterminates, and F[X,Y] the ring of polynomials in two commuting indeterminates. A polynomial $f(X, Y) \in F < X, Y >$ is called admissible if each of its monomials has length at least 3 and f(X,Y) has trivial image under the natural F-algebra map from $F < X, Y >$ to F[X,Y]. In general, the F-algebras R studied in the paper need not be commutative. The purpose of this paper is to continue the study of commutativity of these rings. Conditions imposed on R to obtain commutativity are variations of the following result: Let R be a ring; and suppose that for each x,y$\in R$, there exists a polynomial p(X)$\in XZ[X]$, depending on x and y, for which $xy - yx = (xy - yx)p(x)$. Then R is commutative.

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MSC:

16U70	Center, normalizer (invariant elements) (associative rings and algebras)	Cited in **1** Review
16Rxx	Rings with polynomial identity	Cited in **3** Documents

Keywords:

commutators; ring of polynomials; commutativity