

**Lee, Tsiu-Kwen****Power reduction property for generalized identities of one-sided ideals.** (English)

Zbl 0845.16017

Algebra Colloq. 3, No. 1, 19-24 (1996).

Let  $R$  be a semiprime ring,  $U$  be the left Utumi quotient of  $R$ . Suppose that a left ideal  $I$  of  $R$  satisfies the GPI  $f(x_1^{n_1}, \dots, x_m^{n_m}) = 0$ , where  $f(x_1, \dots, x_m)$  is a multilinear generalized polynomial with coefficients in  $U$ . The author proves that  $I$  satisfies the identity  $f(x_1, \dots, x_m) = 0$ . As a corollary the author obtains the following generalization of Felzenszwalb's result: Let  $R$  be a prime ring,  $I <_e R$ ,  $C$  the extended centroid of  $R$  and  $d$  a nonzero derivation of  $R$  such that for some multilinear polynomial  $f(x_1, \dots, x_m)$  over  $C$   $d(f(x_1^{n_1}, \dots, x_m^{n_m})) \in C$ , where  $n_1, \dots, n_m$  are fixed numbers. Then either  $f(x_1, \dots, x_m)$  is central-valued on  $I/I \cap r_R(I)$  or  $\text{char } R = 2$  and  $I/I \cap r_R(R)$  satisfies  $S_4$ .

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**MSC:****16R50** Other kinds of identities (generalized polynomial, rational, involution)Cited in **25** Documents**16N60** Prime and semiprime associative rings**16W25** Derivations, actions of Lie algebras**Keywords:**

multilinear generalized polynomial identities; semiprime rings; prime rings; extended centroid; derivations