

Drensky, Vesselin; Formanek, Edward

Polynomial identity rings. (English) Zbl 1077.16025

Advanced Courses in Mathematics - CRM Barcelona. Basel: Birkhäuser (ISBN 3-7643-7126-9/pbk). vi, 200 p. (2004).

The volume contains two expository papers on polynomial identities that together form an excellent introductory text on the subject. Drensky covers the combinatorial aspects of polynomial identity rings, such as connections with representation theory of the symmetric group, and relations to invariant theory, while Formanek presents structural, algebraic results, such as Posner's theorem, a PI-Nullstellensatz by Amitsur and Procesi and algebraic properties of the ring of $n \times n$ generic matrices.

For some fundamental results, such as the Amitsur-Levitzki theorem and the construction of central polynomials for matrix rings two proofs (Razmyslov's and Rosset's, resp., Razmyslov's and Formanek's) are given.

Reviewer: [Sophie Frisch \(Graz\)](#)

MSC:

- 16R10** *T*-ideals, identities, varieties of associative rings and algebras
- 16-02** Research exposition (monographs, survey articles) pertaining to associative rings and algebras
- 16R30** Trace rings and invariant theory (associative rings and algebras)
- 05E10** Combinatorial aspects of representation theory
- 20C30** Representations of finite symmetric groups
- 15A24** Matrix equations and identities

Cited in **42** Documents

Keywords:

polynomial identities; PI-rings; central polynomials; invariant theory of matrices; generic matrices