Algebra II: Noncommutative Rings Identities
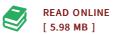
By -

Springer. Paperback. Condition: New. 234 pages. Dimensions: 9.0in. x 6.0in. x 0.6in.The algebra of square matrices of size n 2 over the field of complex numbers is, evidently, the best-known example of a non-commutative alge- 1 bra Subalgebras and subrings of this algebra (for example, the ring of n x n matrices with integral entries) arise naturally in many areas of mathemat- ics. Historically however, the study of matrix algebras was preceded by the discovery of quatemions which, introduced in 1843 by Hamilton, found ap- plications in the classical mechanics of the past century. Later it turned out that quaternion analysis had important applications in field theory. The al- gebra of quaternions has become one of the classical mathematical objects; it is used, for instance, in algebra, geometry and topology. We will briefly focus on other examples of non-commutative rings and algebras which arise naturally in mathematics and in mathematical physics. The exterior algebra (or Grassmann algebra) is widely used in differential geometry - for example, in geometric theory of integration. Clifford algebras, which include exterior algebras as a special case, have applications in rep- resentation theory and in algebraic topology. The Weyl algebra (Le. algebra of differential operators with...

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