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Matrices over centrally \mathbb{Z}_2 -graded rings. (English) Zbl 1016.15013

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The authors introduce a new computational technique for $n \times n$ matrices over a \mathbb{Z}_2 -graded ring $R = R_0 \oplus R_1$ with $R_0 \subseteq Z(R)$, leading to a new concept of the determinant which can be used to derive an invariant Cayley-Hamilton identity. An explicit construction of the inverse matrix A^{-1} for any invertible $n \times n$ matrix A over a Grassmann algebra E is also obtained.

Reviewer: Rodica Covaci (Cluj-Napoca)

MSC:

- [15B33](#) Matrices over special rings (quaternions, finite fields, etc.)
- [15A24](#) Matrix equations and identities
- [15A75](#) Exterior algebra, Grassmann algebras
- [15A09](#) Theory of matrix inversion and generalized inverses
- [15A15](#) Determinants, permanents, traces, other special matrix functions

Cited in 1 Document

Keywords:

\mathbb{Z}_2 -graded ring; skew polynomial ring; determinant and adjoint; invariant Cayley-Hamilton identity; inverse matrix; Grassmann algebra

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