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À propos des algèbres vérifiant $x^{[3]} = \omega(x)^3 x$. (French. French summary) [On algebras satisfying $x^{[3]} = \omega(x)^3 x$]

Linear Algebra Appl. **225** (1995), 187–194.

This note is about commutative, finite-dimensional algebras A over a field K (of characteristic 0 or ≥ 5) which admit a homomorphism ω onto K and satisfy the identity $x^2x^2 = \omega(x)^3 x$. From earlier work it is known that, among other results, every such algebra has an idempotent, and that $\mathrm{Ker}(\omega)$ is Jordan, hence nilpotent [see S. Walcher, Arch. Math. (Basel) **56** (1991), no. 6, 547–551; MR1106496 (92k:17053)].

In the present paper, the Peirce decomposition with respect to an idempotent is investigated in some detail, as is the behavior of the Peirce decomposition when passing from one idempotent to another. The latter gives rise to a class of bijections (called Peirce transformations). The authors find necessary and sufficient conditions under which these Peirce transformations are actually algebra automorphisms.

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