Nonmatrix varieties for some classes of non associative algebras

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A variety $\mathcal{M}$ of associative algebras (over a field F) is called "nonmatrix" if $F_2 \notin M$, where F_2 is the usual matrix algebra of second order over F. V.N. Latyshev introduced these varieties in 1977. Concerning this definition, other equivalent characterizations for a nonmatrix variety were obtained, for instance, by considering algebraic (G. Chekanu, 1979) and nilpotent (A. Mishchenko et al, 2012) elements. Nonmatrix varieties are studied mainly in the case of characteristic zero for associative algebras.

However, the theory of varieties of algebras is not restricted to the class of associative algebras. In addition to the Lie algebras, among many classes of non associative algebras, we highlight the alternative, the Jordan and the non commutative Jordan algebras. These classes of algebras have many connections and applications to several areas of Mathematics and Physics and have a well-developed structural theory, as in the class of associative algebras.

The concept of "nonmatrix variety" can be reformulated in the classes of algebras above and our work is to adapt, extend or generalize some results, as mentioned, for non-matrix varieties in these classes of algebras.

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