The structure and representation of \( n \)-ary algebras of DNA recombination. (English)

The paper is devoted to the structure and representation of \( n \)-ary algebras arising from DNA recombination, where \( n \) is the number of DNA segments participating in recombination. The author applies methods which involve a generalization of the Jordan formalization of observables in quantum mechanics in \( n \)-ary splicing algebras. He proves that every identity satisfied by \( n \)-ary DNA recombination, with no restriction on the degree, is a consequence of \( n \)-ary commutativity and a single \( n \)-ary identity of the degree \( 3n - 2 \). This result solves an open problem in the theory of \( n \)-ary intermolecular recombination [M. R. Bremner, Discrete Contin. Dyn. Syst., Ser. S 4, No. 6, 1387–1399 (2011; Zbl 1256.17001)].

Reviewer: Sh. A. Ayupov (Tashkent)

MSC:
17C50 Jordan structures associated with other structures
17A42 Other \( n \)-ary compositions (\( n \geq 3 \))
17D92 Genetic algebras

Keywords:
Jordan algebras; DNA recombination; splicing algebras; special algebras

Full Text: DOI

References:

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