

Kukin, G.

The variety of all rings has Higman's property. (English) [Zbl 0838.16014](#)

Bokut', L. A. (ed.) et al., Third Siberian school on algebra and analysis. Proceedings of the third Siberian school, Irkutsk State University, Irkutsk, Russia, August 30-September 4, 1989. Providence, RI: American Mathematical Society. Transl., Ser. 2, Am. Math. Soc. 163, 91-101 (1995).

A recursively axiomatizable variety of algebraic structures is said to have Higman's property if any finitely generated recursively presented structure in the variety is embeddable into a structure which is finitely presented in the variety. An origin of the notion is the Higman embedding theorem which states that the variety of groups has this property. It is also known that the varieties of semigroups (V. L. Murskij), inverse semigroups, associative rings, associative algebras over a finitely generated field (V. Ya. Belyaev), Lie rings, Lie algebras over a finitely generated field (G. P. Kukin) have Higman's property. The main result of the paper under review: the variety of all rings has Higman's property. The author claims that using the technique of his proof one can construct finitely presented rings with unsolvable word problem in certain varieties of rings and that the varieties of commutative and anti-commutative rings have Higman's property, too.

For the entire collection see [\[Zbl 0816.00016\]](#).

Reviewer: [O.V.Belegradek \(Kemerovo\)](#)

MSC:

- [16R10](#) *T*-ideals, identities, varieties of associative rings and algebras
- [03D40](#) Word problems, etc. in computability and recursion theory
- [16S15](#) Finite generation, finite presentability, normal forms (diamond lemma, term-rewriting)
- [03D25](#) Recursively (computably) enumerable sets and degrees
- [16B70](#) Applications of logic in associative algebras
- [20E10](#) Quasivarieties and varieties of groups

Cited in **1** Document

Keywords:

recursively axiomatizable varieties; Higman's property; recursively presented structures; variety of groups; varieties of semigroups; finitely presented rings; unsolvable word problem