

Non-absolutely nil-algebras

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Recently Agata Smoktunowicz has constructed finitely generated nil-algebras over countable fields such that their algebras of polynomials with two or more commuting indeterminates are not nil [6, 7]. On the other hand the author [5] has constructed finitely generated non-nilpotent nil-algebras over every field without using the well know Golod-Shafarevich Lemma [4]. In this talk we will describe how to combine Smoktunowicz's work [6, 7] with some ideas from our paper [5] to construct further examples of non-absolutely nil-algebras. As a consequence of our construction, one can prove the existence of nil-algebras with non-nil Jacobson radical algebras of polynomials in one indeterminate. This gives another counterexample to Amitsur's conjecture [1, 2, 3] and proves that the results obtained by A. Smoktunowicz [6, 7] and Puczyłowski-Smoktunowicz [8] can be obtained from one construction.

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