Huisgen-Zimmermann, Birge; Saorín, Manuel

Direct products of modules and the pure semisimplicity conjecture. II. (English)


This work is the second part of the work of B. Huisgen-Zimmermann and F. Okoh [Commun. Algebra 29, No. 1, 271-276 (2001; Zbl 0999.16006)] where they proved that: If $R$ is an Artin algebra, or a commutative Noetherian domain of Krull dimension 1, and if $(M_n)_{n \in \mathbb{N}}$ is a family of finitely generated indecomposable non-isomorphic $R$-modules, then the product $\prod_{n \in \mathbb{N}} M_n$ is not a direct sum of finitely generated modules.

In this work, the authors prove that the same is true for the module categories of Noetherian algebras and for affine Noetherian PI-algebras over a Noetherian Jacobson ring. The proof is done by constructing a descending chain of left primitive ideals with some properties. Again, the paper discusses the connection with the pure semisimplicity conjecture.

Reviewer: Gladys Chalom (São Paulo)

MSC:

16D70 Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras

16G60 Representation type (finite, tame, wild, etc.) of associative algebras

16G10 Representations of associative Artinian rings

Keywords: direct sum decompositions; pure semisimplicity; representation type; Artin algebras; finitely generated indecomposable modules; primitive ideals

Full Text: DOI arXiv