

Orbit algebras of repetitive categories

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A prominent role in the representation theory of finite dimensional self-injective algebras over a field is played by the orbit algebras \widehat{B}/G of the repetitive categories \widehat{B} of finite dimensional algebras B with respect to actions of admissible automorphism groups G of \widehat{B} . In the theory, the orbit algebras \widehat{B}/G given by algebras B of finite global dimension and infinite cyclic groups G are of particular interest. Frequently, interesting selfinjective algebras are Morita equivalent to socle deformations of such selfinjective orbit algebras, and we may reduce their representation theory to that for the corresponding algebras of finite global dimension.

The aim of the minicourse is to outline the theory of positive Galois coverings of selfinjective algebras developed during the last decade jointly with Kunio Yamagata as well as its applications. In particular, criteria for a selfinjective algebra to be isomorphic to an orbit algebra of the repetitive category of an algebra will be exhibited. We will also show that the representation-infinite selfinjective algebras having all Auslander-Reiten components generalized standard are orbit algebras of repetitive categories of quasitilted algebras with nonnegative Euler forms.