

The ring of modules with endo-permutation source

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Abstract

In the talk I will report on some recent joint work with Robert Boltje. For an algebraically closed field F of characteristic $p > 0$, the Green algebra $A(FG)$ is an algebra over the complex numbers; a basis is given by the isomorphism classes of indecomposable FG -modules; multiplication in $A(FG)$ comes from the tensor product. For “most” finite groups G , the Green algebra $A(FG)$ contains nilpotent elements.

We have investigated subalgebras of $A(FG)$ which do not contain nilpotent elements. One of these is spanned by the isomorphism classes of the indecomposable FG -modules whose sources are endo-permutation modules (cf. the talk by Nadia Mazza). Another subalgebra of $A(FG)$ is spanned by the isomorphism classes of all irreducibly generated modules. When G is (p) -solvable then this algebra is finite-dimensional and split semisimple.