Boğaziçi
MATH COLLOQUIUM

Algebras associated with Green functors, and algebras that ought to be associated with Green functors.

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Abstract: In the representation theory of finite groups, the following situation occurs frequently: for each finite group G, there is a ring A(G) and, for each subgroup H of G, there are induction and restriction maps between A(H) and A(G). Examples of such rings A(G) are Burnside rings, character rings, trivial source rings. James Green, in 1971, initiated an axiomatic approach to describing many features common to such situations. Subsequent developments have often ignored the ring structures. However, Serge Bouc, in 2010, described a rich algebraic scenario, called the theory of Green biset functors, which does involve the ring structures. In fact, in his scenario, there are three multiplicative operations. We shall discuss a generalization that accommodates cases previously excluded, such as cohomology rings and modular character rings. Nevertheless, some similar situations of interest, such as the theory of the linear category associated with the bifree trivial source bimodules, still evade capture.

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