

Modules of equivariant Eilenberg–MacLane spectra

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Cohomology with \mathbb{Z}/p -coefficients is represented by a stable object, an Eilenberg–MacLane spectrum $H\mathbb{Z}/p$. Classically, since \mathbb{Z}/p is a field, any module over $H\mathbb{Z}/p$ splits as a wedge of suspensions of $H\mathbb{Z}/p$ itself. Equivariantly, cohomology and the module theory of G -equivariant Eilenberg–MacLane spectra are much more complicated.

For the cyclic group $G = C_p$ and the constant Mackey functor $\underline{\mathbb{Z}}/p$, there are infinitely many indecomposable $H\underline{\mathbb{Z}}/p$ -modules. Previous work together with Dugger and Hazel classified all indecomposable $H\underline{\mathbb{Z}}/2$ -modules for the group $G = C_2$. The isomorphism classes of indecomposables fit into just three families. By contrast, we show for $G = C_p$ with p an odd prime, the classification of indecomposable $H\underline{\mathbb{Z}}/p$ -modules is wild. This is joint work in progress with Grevstad.

Orateur: MAY, Clover