



Abstract

Vortrag im Mathematischen Kolloquium am 5. Dezember 2017

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Modular representation theory via homotopy theory

The modular representation theory of finite groups is a wild, and sometimes bewildering, place: Indecomposable representations may not be simple, and the indecomposable modules can be shown to be, in general, "unclassifiable", in a precise sense. In this harsh and unforgiving climate there are however islands of structure and beauty:

One such is the class of so-called endo-trivial modules, modules M such that $\text{End}(M)$ is isomorphic to a trivial module plus a projective module. These modules occur in many parts of representation theory as "almost 1-dimensional modules". I'll describe the quest to classify such modules spanning the last 40 years, starting from the work of Dade in the 70s and leading into the present, where methods from homotopy theory come to play a role.