

# DECOMPOSITION ALGEBRAS AND REPRESENTATION THEORY

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Abstract: Decomposition algebras are algebras that admit many different gradings. We have introduced them as a framework to study so-called axial algebras, which in turn were modeled after the Griess algebra, the famous real 196884-dimensional algebra having the Monster group as its automorphism group. Our framework also allows for a much better categorical context.

We will give a gentle introduction to the subject along with many examples. In particular, we will indicate how interesting examples arise from representation theory of both finite groups and algebraic groups.

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