

# Axial algebras for exceptional Chevalley groups

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## **Abstract**

The aim of the talk is to explain how representation theory can help to construct new axial algebras. The inspiration for this idea comes from the work of S. Garibaldi and R. Guralnick who observed the existence of a 3875-dimensional commutative non-associative algebra for the Chevalley group of type E8. A careful look at the representation theory of this group, reveals that this algebra is axial.

However, the idea to use representation theory to discover axial algebras for groups can be used in a general context. Even more so if one extends the definition of an axial algebra by leaving out the requirement that the decomposition has to come from a decomposition into eigenspaces of an idempotent. This new definition allows for more categorical concepts like e.g. tensor products.

(Joint work with Tom De Medts and Sergey Shpectorov)