

# Algebraic and geometric constructions of weight modules of Lie algebras

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Weight modules of Lie algebras have been extensively studied in the last 30 years. A major breakthrough in the theory has been achieved by O. Mathieu in 2000 by obtaining a classification of the simple weight modules of all finite dimensional reductive Lie algebras. In this talk we will introduce Mathieu's original constructions related to his classification and will discuss some of their generalization. The new results are a part of an ongoing joint project of the speaker with V. Serganova.