

CATEGORIES OF WEIGHT MODULES OF LIE ALGEBRAS

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ABSTRACT. Following works of G. Benkart, D. Britten, S. Fernando, V. Futorny, A. Joseph, F. Lemire, and others, in 2000 O. Mathieu achieved a major breakthrough in representation theory by classifying the simple weight modules of all finite dimensional simple Lie algebras. The next step in the study of weight modules is to look at the indecomposable modules. In this talk we will discuss recent results related to the structure of the indecomposable weight modules and connections with quiver theory and algebraic geometry. This is a joint work with Vera Serganova.