

Algebra Seminar

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1 p.m.

HH-3017

Counting fine gradings on matrix algebras and on classical simple Lie Algebras

Abstract:

Known classification results allow us to find the number of fine gradings on matrix algebras and on classical simple Lie algebras over an algebraically closed field (assuming that characteristic is not 2 in the Lie case). The computation is easy for matrix algebras and especially for simple Lie algebras of Series B, but involves counting orbits of certain finite groups in the case of Series A, C and D. We determine the exact number of fine gradings on the simple Lie algebras of these series up to rank 100 as well as the asymptotic behaviour of the average number of fine gradings for large rank. This is joint work with Nicholas Parsons and Sergey Sadov.