

Algebra Seminar

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**Wednesday, January 15, 2014
1:00p.m., HH-3017**

"Graded modules over simple Lie algebras with a group grading"

Abstract:

Gradings on Lie algebras by various abelian groups arise in the theory of symmetric spaces, Kac-Moody algebras, and color Lie superalgebras. In the 1960s, V. Kac classified all gradings by cyclic groups on finite-dimensional simple Lie algebras over complex numbers. Recently, there has been considerable progress in the classification of gradings by arbitrary abelian groups on finite-dimensional simple Lie algebras over algebraically closed fields. Given a G -grading on such a Lie algebra L , it is natural to study G -graded L -modules. In characteristic 0, any finite-dimensional graded L -module is a direct sum of simple graded L -modules. We will describe finite-dimensional simple graded L -modules (using a version of Clifford Theory) and consider the following related problem: which of the finite-dimensional L -modules admit G -gradings making them graded modules?