THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
Superalgebra Theory and Representations Seminar

on Wednesday, Nov 17, 2021at 19:15

Zoom: https://us02web.zoom.us/j/88189258443?pwd=S3JLcElXTUpadktqZ0VLWHNmVXdiQT09

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The nilpotent cone for classical simple Lie superalgebras

Abstract:

Many aspects of the representation theory of a Lie algebra and its associated algebraic group are governed by the geometry of their nilpotent cone. In this talk, we will introduce an analogue of the nilpotent cone N for Lie superalgebras and show that for a simple classical Lie superalgebra the number of nilpotent orbits is finite. We will also show that the commuting variety X described by Duflo and Serganova, which has applications in the study of the finite dimensional representation theory of Lie superalgebras, is contained in N. Consequently, the finiteness result on N generalizes and extends the work on the commuting variety. For the general linear Lie superalgebra gl(m|n), we will also discuss more detailed geometric results of N. In particular, we compute the dimensions of N and the centralizer of a nilpotent orbit, describe the irreducible components of N, and show that N is a complete intersection. This is joint work with Daniel Nakano from the University of Georgia.