
THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
Algebraic Geometry and Representation Theory Seminar

Room 261 ,Ziskind Building
on Wednesday, Nov 25, 2015at 11:00

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Simple Lie conformal algebras

Abstract:

The notion of a Lie conformal algebra (LCA) comes from physics, and is related to the operator product expansion. An LCA is a module over a ring of differential operators with constant coefficients, and with a bracket which may be seen as a deformation of a Lie bracket. LCA are related to linearly compact differential Lie algebras via the so-called annihilation functor. Using this observation and the Cartan's classification of linearly compact simple Lie algebras, Bakalov, D'Andrea and Kac classified finite simple LCA in 2000.

I will define the notion of LCA over a ring R of differential operators with not necessarily constant coefficients, extending the known one for $R=K[x]$. I will explain why it is natural to study such an object and will suggest an approach for the classification of finite simple LCA over arbitrary differential fields.