

MATHEMATICS DEPARTMENT
North Carolina State University

ALGEBRA SEMINAR

Friday, November 3, 2006

Professor Bojko Bakalov
NC State University

Non-linear Lie conformal algebras
with three generators

ABSTRACT: The notion of a Lie conformal algebra encodes the commutators of quantum fields in a vertex algebra. Starting from a Lie conformal algebra one can construct a vertex algebra such that the commutators of generating fields are linear combinations of the same fields and their derivatives. The notion of a non-linear Lie conformal algebra captures the general case when the commutators of generating fields involve not only linear combinations but (normally-ordered) products.

We classify certain non-linear Lie conformal algebras with three generators, which can be viewed as deformations of the affine Lie algebra $\widehat{\mathfrak{sl}}(2)$. We construct free-field realizations of our algebras extending the Wakimoto realization of $\widehat{\mathfrak{sl}}(2)$ at the critical level -2 . This is joint work with Alberto De Sole.

3:00 - 3:50 pm HA 335

Faculty and Students are invited to attend.