

MATHEMATICS DEPARTMENT
North Carolina State University

ALGEBRA SEMINAR

Wednesday, January 19, 2005

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Affine Lie Algebras, Vertex Operator Algebras
and Multisum Identities

ABSTRACT: Affine Lie algebra representations have many connections with different areas of mathematics and physics. One such connection in mathematics is with number theory and in particular combinatorial identities.

In this talk we consider level k (k a positive integer) integrable highest weight representations of affine Lie algebras of ADE type. Viewing these representations as vertex operator algebras and using vertex operator algebra methods, we obtain recurrence relations for their characters.

When we examine the case level $k = 1$, we are able to solve these recurrence relations thus obtaining formulas for these characters. Then taking the principal specialization we obtain new families of multisum identities of Rogers–Ramanujan type.

1:30 - 2:20 pm HA 370

Faculty and Students are invited to attend.