

Last updated 11 August, 2015

**CONFERENCE ON LIE ALGEBRAS, VERTEX OPERATOR
ALGEBRAS, AND RELATED TOPICS**

A conference in honor of J. Lepowsky and R. Wilson
Department of Mathematics – University of Notre Dame
Friday August 14 – Tuesday August 18, 2015

Friday 8/14

8:00 Coffee Math Lounge Room 257 Hurley Hall

Chair: K. Misra Room 127 Hayes-Healy Hall

8:30 Opening Remarks

8:45 **C. Dong**, Parafermion vertex operator algebras

9:45 **G. Benkart**, A walk on the McKay correspondence

10:45 Coffee Break

11:15 **M. Primc**, Difference conditions in combinatorial bases of representations of affine Lie algebras

12:15 Lunch

2:00 **M. Miyamoto**, The regularity of orbifold model

3:00 **A. Semikhatov**, The different facets of logarithmic Kazhdan–Lusztig duality

4:00 Coffee Break

4:30 – 5:45 Short talks:

Parallel Session 1

Room 229 Hayes-Healy Hall

Chair: J. Yang

4:30 **C. Calinescu**, On vertex-algebraic structure of principal subspaces of standard modules for affine Lie algebras

4:55 **C. Sadowski**, Vertex-algebraic structure of principal subspaces of $D_4^{(3)}$ -modules

5:20 **M. Penn**, Vertex-algebraic structure of principal subspaces of standard $A_{2n}^{(2)}$ -modules

Parallel Session 2

Room 231 Hayes-Healy Hall

Chair: S. Kanade

4:30 **D. Radnell**, Analytic foundations of conformal field theory

4:55 **O. Perse**, Representations of some affine vertex algebras at negative integer levels

5:20 **J. Zhang**, Quantum determinants and quantum Pfaffians

6:30–8:30 Reception

Jordan Hall of Science Reading Room

Saturday 8/15

8:00 Coffee Math Lounge Room 257 Hurley Hall

Chair: K. Barron Room 127 Hayes-Healy Hall

8:30 **K. Nagatomo**, Vertex operator algebras with central charge $1/2$ and $-68/7$

9:30 **A. Premet**, Maximal subalgebras of exceptional Lie algebras over fields of good characteristic

10:30 Coffee Break

11:00 **V. Chari**, Multiplicities in Demazure flags, mock theta functions and the cone theta functions

12:00 **J. Lepowsky**, Representation theory of vertex operator algebras and partition identities – some current developments

1:00 Lunch

3:00 Open Problem Session 1 (moderated by Y.-Z. Huang) Room 127 Hayes-Healy Hall

4:00 Coffee Break

4:30 – 5:45 Short talks:

Parallel Session 1 Room 229 Hayes-Healy Hall

Chair: C. Calinescu

4:30 **J. Yang**, Vertex algebras associated to abelian current Lie algebras

4:55 **N. Vander Werf**, Special pairs of screening operators and certain subalgebras of lattice vertex operator algebras

5:20 **R. McRae**, On the associativity isomorphisms in affine Lie algebra tensor category

Parallel Session 2 Room 231 Hayes-Healy Hall

Chair: C. Sadowski

4:30 **S. Wood**, Symmetric polynomials and modules over affine \mathfrak{sl}_2 at admissible levels

4:55 **E. Wilson**, Tensor product decomposition $\widehat{\mathfrak{sl}}_n$ -modules and generating series

5:20 **B. Coulson**, An $A_2^{(1)}$ motivated proof of Rogers-Ramanujan identities

8:00 *William Shakespeare's Long Lost First Play* performed by Notre Dame Shakespeare Festival Professional Company at Notre Dame's DeBartolo Performing Arts Center. Sign up sheet to purchase tickets will be posted.

Sunday 8/16

8:00 Coffee Math Lounge Room 257 Hurley Hall

Chair: A.Milas Room 127 Hayes-Healy Hall

8:30 **G. Andrews**, On the Kanade/Russell Conjectures

9:30 **K. Bringmann**, Quantum modular forms and application

10:30 Coffee Break

11:00 **W. Wang**, Super Kazhdan-Lusztig theory ABC

12:00 **K. Wendland**, Towards vertex operator algebras for $K3$

1:00 Lunch

3:00 **E. Mukhin**, Integrable system associated to quantum toroidal $\mathfrak{gl}(1)$

4:00 Coffee Break

4:30–5:45 Short talks:

Parallel Session 1

Room 229 Hayes-Healy Hall

Chair: R. McRae

4:30 **M. Krauel**, A transformation law for vertex operator algebra theta functions

4:55 **S. Kanade**, The Rogers-Ramanujan identities: From sums, hopefully to products

5:20 **M. Russell**, IdentityFinder and some new identities of Rogers-Ramanujan type

Parallel Session 2

Room 231 Hayes-Healy Hall

Chair: M. Penn

4:30 **N. Yu**, Rationality, regularity and C_2 -cofiniteness

4:55 **D. Ridout**, Non- C_2 -cofinite VOAs and the Verlinde formula

5:20 **A. Linshaw**, Cosets of affine vertex algebras inside larger structures

6:30–9:30 Banquet

Jordan Hall of Science Gallery

Monday 8/17

8:00 Coffee Math Lounge Room 257 Hurley Hall

Chair: L. Jurisich Room 127 Hayes-Healy Hall

8:30 **J. Fuchs**, Mapping class group invariants from finite ribbon categories

9:30 **I. Runkel**, Holomorphic symplectic fermions

10:30 Coffee Break

11:00 **D. Adamovic**, Explicit realizations of affine vertex algebras and their applications

12:00 **N. Jing**, Quantum Sugawara operators of quantum affine algebra of type A

1:00 Lunch

3:00 Open Problem Session 2 (moderated by Y.-Z. Huang) Room 127 Hayes-Healy Hall

4:00 Coffee Break

4:30 **A. Henriques**, Representations of based loop groups

5:30–6:20 Short talks: Room 127 Hayes-Healy Hall

5:30 **D. Addabbo**, Representation theory and generalized Q -systems

5:55 **D. Nandi**, Partition identities arising from the level 4 standard modules for $A_2^{(2)}$

Tuesday 8/18

8:00 Coffee Math Lounge Room 257 Hurley Hall

Chair: H. Li Room 127 Hayes-Healy Hall

8:30 **N. Wallach**, Structural results for Vinberg pairs

9:30 **Y. Kawahigashi**, From vertex operator algebras to operator algebras and back

10:30 Coffee Break

11:00 **S. Stolz**, Factorization algebras, vertex operator algebras and functorial field theories

12:00 **L. Carbone**, Finite presentations of hyperbolic Kac-Moody groups

1:00 Closing Remarks