

Vanderbilt University, Department of Mathematics, Nashville, Tennessee, USA

**THE THIRD ANNUAL SPRING INSTITUTE ON
NONCOMMUTATIVE GEOMETRY AND OPERATOR ALGEBRAS**

in conjunction with the

20th ANNUAL SHANKS LECTURE

May 9 to May 20, 2005

Schedule of Talks

Monday, May 9, 2005

9:15 am - 9:30 am *Welcome*
9:30 am - 10:30 am **Claire Anantharaman-Delaroche 1** - *Correspondences and Type II₁ Factors*
10:30 am - 11:00 am *Coffee Break*
11:00 am - 12:00 am **Dan Voiculescu 1** - *Topics in Free Probability Theory*
12:00 pm - 2:00 pm *Lunch Break*
2:00 pm - 3:00 pm **Feng Xu 1** - *The Standard Invariant of a Subfactor*
3:10 pm - 4:00 pm **Zhenghan Wang** - *Quantum Topology, Quantum Physics and Quantum Computing*
4:00 pm - 4:30 pm *Coffee Break*
4:45 pm - 5:00 pm Introduction Shanks Lecturer, **Dean McCarty**, 103 Wilson Hall
5:00 pm - 6:00 pm **Vaughan Jones** - *A Trip to the Subfactor Circus*
20th Shanks Lecture, 103 Wilson Hall
6:15 pm *Reception, Foyer Wilson Hall*

Tuesday, May 10, 2005

9:30 am - 10:30 am **Vaughan Jones 1** - *A Short Course in Planar Algebra*
10:30 am - 11:00 am *Coffee Break*
11:00 am - 12:00 pm **Claire Anantharaman-Delaroche 2** - *Correspondences and Type II₁ Factors*
12:00 pm - 2:00 pm *Lunch Break*
2:00 pm - 3:00 pm **Dan Voiculescu 2** - *Topics in Free Probability Theory*
3:10 pm - 4:10 pm **Feng Xu 2** - *The Standard Invariant of a Subfactor*
4:10 pm - 4:40 pm *Coffee Break*
4:40 pm - 5:30 pm **Sergey Neshveyev** - *Types of von Neumann Algebras Arising from Boundary Actions of Hyperbolic Groups*

Wednesday, May 11, 2005

9:30 am - 10:30 am Claire Anantharaman-Delaroche 3 - *Correspondences and Type II_1 Factors*
10:30 am - 11:00 am Coffee Break
11:00 am - 12:00 pm Vaughan Jones 2 - *A Short Course in Planar Algebra*
12:00 pm - 2:00 pm Lunch Break
2:00 pm - 3:00 pm Feng Xu 3 - *The Standard Invariant of a Subfactor*
3:10 pm - 4:00 pm Matilde Marcolli - *KMS States and Complex Multiplication*
4:00 pm - 4:30 pm Coffee Break
4:30 pm - 5:00 pm Shamindra Ghosh - *Representations of a Planar Algebra*
5:10 pm - 5:40 pm Remus Nicoara - *On II_1 Factors Arising from 2-Cocycles of w -rigid Groups*
6:00 pm - Dinner/Party

Thursday, May 12, 2005

9:30 am - 10:30 am Vaughan Jones 3 - *A Short Course in Planar Algebra*
10:30 am - 10:50 am Coffee Break
10:50 am - 11:20 am Pinhas Grossman - *Intermediate Subfactors with No Extra Structure*
11:30 am - 12:30 pm Claire Anantharaman-Delaroche 4 - *Correspondences and Type II_1 Factors*
12:30 pm - 2:00 pm Lunch Break
2:00 pm - 3:00 pm Alain Connes 1 - *Von Neumann Algebras and Noncommutative Geometry*
3:10 pm - 4:10 pm Dan Voiculescu 3 - *Topics in Free Probability Theory*
4:10 pm - 4:30 pm Coffee Break
4:30 pm - 5:30 pm Narutaka Ozawa 1 - *Hyperbolic Groups and Type II_1 Factors*

Friday, May 13, 2005

Day Off

Saturday, May 14, 2005

9:30 am - 10:30 am Alain Connes 2 - *Von Neumann Algebras and Noncommutative Geometry*
10:30 am - 11:00 am Coffee Break
11:00 am - 12:00 pm Dan Voiculescu 4 - *Topics in Free Probability Theory*
12:00 pm - 2:00 pm Lunch Break
2:00 pm - 3:00 pm Narutaka Ozawa 2 - *Hyperbolic Groups and Type II_1 Factors*
3:10 pm - 4:00 pm Florin Radulescu - *A Hochschild "Obstruction" to Isomorphism and the Rademacher Function*
4:00 pm - 4:30 pm Coffee Break
4:30 pm - 5:20 pm Alain Valette - *Group II_1 -factors with Trivial Fundamental Group and all L^2 -Betti Numbers Zero*

Sunday, May 15, 2005

- 9:30 am - 10:30 am **Dima Shlyakhtenko 1** - *Free Probability and L^2 -Invariants in Operator Algebras*
10:30 am - 11:00 am *Coffee Break*
11:00 am - 12:00 pm **Alain Connes 3** - *Von Neumann Algebras and Noncommutative Geometry*
12:00 pm - 2:00 pm *Lunch Break*
2:00 pm - 2:50 pm **Wolfgang Lueck** - *Middle Algebraic K-theory of von Neumann Algebras, Group C*-Algebras and Group Rings*
3:00 pm - 3:50 pm **Roland Speicher** - *Free Probability and Random Matrices*
3:50 pm - 4:20 pm *Coffee Break*
4:20 pm - 5:10 pm **Antony Wassermann** - *Automorphic Representations of Locally Compact Groups on Operator Algebras*

Monday, May 16, 2005

- 9:30 am - 10:30 am **Narutaka Ozawa 3** - *Hyperbolic Groups and Type II₁ Factors*
10:30 am - 11:00 am *Coffee Break*
11:00 am - 12:00 pm **Sorin Popa 1** - *Deformation and Rigidity Techniques in the Classification of II₁ Factors*
12:00 pm - 2:00 pm *Lunch Break*
2:00 pm - 3:00 pm **Dima Shlyakhtenko 2** - *Free Probability and L^2 -Invariants in Operator Algebras*
3:10 pm - 4:00 pm **Florin Boca** - *Some Statistical Problems Related to the Equation $ad-bc=1$*
4:00 pm - 4:30 pm *Coffee Break*
4:30 pm - 5:00 pm **Kenley Jung** - *Some Free Entropy Dimension Inequalities for Subfactors of Finite Index*

Tuesday, May 17, 2005

- 9:30 am - 10:30 am **Sorin Popa 2** - *Deformation and Rigidity Techniques in the Classification of II₁ Factors*
10:30 am - 11:00 am *Coffee Break*
11:00 am - 11:50 am **Teodor Banica** - *Random Walks on Discrete Quantum Groups*
11:50 am - 2:00 pm *Lunch Break*
2:00 pm - 2:50 pm **Ken Dykema** - *Multilinear Function Series and Transforms in Free Probability Theory*
3:00 pm - 3:50 pm **Yasuyuki Kawahigashi** - *Classification of Extensions in Algebraic Quantum Field Theory and Vertex Operator Algebras*
3:50 pm - 4:20 pm *Coffee Break*
4:20 pm - 5:10 pm **Roberto Longo** - *Noncommutative Spectral Invariants and Black Hole Entropy*

Wednesday, May 18, 2005

- 9:30 am - 10:30 am Uffe Haagerup 1 - *Invariant Subspaces for Operators in II_1 Factors*
10:30 am - 11:00 am Coffee Break
11:00 am - 12:00 pm Sorin Popa 3 - *Deformation and Rigidity Techniques in the Classification of II_1 Factors*
12:00 pm - 2:00 pm Lunch Break
2:00 pm - 2:30 pm Jesse Peterson - *Amalgamated Free Products of w-rigid Factors and Calculation of their Symmetry Groups, part I*
2:40 pm - 3:10 pm Adrian Ioana - *Amalgamated Free Products of w-rigid Factors and Calculation of their Symmetry Groups, part II*
3:20 pm - 3:50 pm Roman Sauer - *Another Approach to Gaboriau's L^2 -Betti Numbers of Equivalence Relations*
3:50 pm - 4:20 pm Coffee Break
4:20 pm - 5:10 pm Alex Furman - *Measure Equivalence and Rigidity of Higher Rank Lattices*

Thursday, May 19, 2005

- 9:30 am - 10:30 pm Sorin Popa 4 - *Deformation and Rigidity Techniques in the Classification of II_1 Factors*
10:30 am - 11:00 pm Coffee Break
11:00 am - 12:00 pm Uffe Haagerup 2 - *Invariant Subspaces for Operators in II_1 Factors*
12:00 pm - 2:00 pm Lunch Break
2:00 pm - 2:30 pm Hanne Schultz - *Brown Measures of Sets of Commuting Operators in a II_1 factor*
2:40 pm - 3:10 pm Yoshimichi Ueda - *HNN Extensions of von Neumann Algebras*
3:10 pm - 3:40 pm Coffee Break
3:40 pm - 4:30 pm Dietmar Bisch - *A Notion of Free Product for Planar Algebras*

Friday, May 20, 2005

- 9:30 am - 10:30 am Uffe Haagerup 3 - *Invariant Subspaces for Operators in II_1 Factors*
10:30 am - 11:00 am Coffee Break
11:00 am - 12:00 pm Sorin Popa 5 - *Deformation and Rigidity Techniques in the Classification of II_1 Factors*

End of Conference