MARTA ASAEDA
University of California, Riverside

Non-existense of finite depth subfactors with certain small indices

In 1991 Haagerup gave the list of graphs as candidates of principal graphs of subfactors with indices within $(4, 3+\sqrt{3})$. We prove that one of the parametrized series of the graphs are not realized as principal graphs except for the first two.

CLAIRE ANANTHARAMAN-DELAROCHE
Universit d'Orlans

tba

NATE BROWN
Pennsylvania State University

Embeddings into R^ω

We will discuss questions and results related to Connes' Embedding Problem.

IONUT CHIFAN
University of California, Los Angeles

tba

KEN DYKEMA
Texas A & M University

Horn's inequalities and Connes' embedding problem

Connes' embedding problem asks whether every separable II_1-factor can be embedded in the ultrapower of the hyperfinite II_1-factor; this is equivalent to asking whether every finite set in every II_1-factor has microstates. We relate this to questions concerning the possible spectral distributions of $a + b$, where a and b are self-adjoint elements in a II_1-factor having given spectral distributions. The finite-dimensional version of the spectral distribution question was solved by Klyatchko, Totaro, Knudson and Tao, in terms of inequalities first formulated by Horn.

SHAMINDRA GHOSH
Vanderbilt University

The planar algebra of the group-type subfactors of Bisch and Haagerup

We describe the planar algebra, or equivalently, the standard invariant, of a family of subfactors introduced by Bisch and Haagerup some 10 years ago. These subfactors play an important role in the theory since they provide a very simple mechanism to construct irreducible subfactors whose standard invariant has infinite depth. This is joint work with Dietmar Bisch and Paramita Das.

THIERRY GIORDANO
University of Ottawa

tba

UFFE HAAGERUP
University of Southern Denmark

Solution of the Effros-Ruan conjecture for bilinear forms on C-algebras (joint work with Magdalena Musat)*

In 1991 Effros and Ruan conjectured that a certain Grothendieck type inequality for a bilinear form on a pair of C*-algebras holds if (and only if) the bilinear form is jointly completely bounded. In 2002 Pisier and Shlyakhtenko proved that this inequality holds in the more general setting of operator spaces, provided that the operator spaces in question are exact, in particular they proved the Effros-Ruan conjecture for pairs of exact C*-algebras. In a recent joint work with Magdalena Musat we prove the Effros - Ruan conjecture for general C*-algebras (and with constant one), i.e. for every jointly completely bounded (jcb) bilinear form u on a pair of C*-algebras A,B there exists states f1,f2 on A and g1,g2 on B, such that

$|u(a,b)| =< ||u||_j cb(f1(aa*)g1(b*b) + f2(a*a)g2(bb*))$

While the approach by Pisier and Shlyahktenko relied on free probability theory, our proof uses more classical operator algebra methods, namely Tomita Takesaki theory and special properties of the Powers factors of Type III-lambda, 0 ¡ lambda ¡ 1.

CYRIL HOUDAYER
University of California, Los Angeles

Another construction of type II_1 factors with a prescribed countable fundamental group

The first examples of such factors were constructed by Popa (2003) using Connes-Stormer Bernoulli shifts of w-rigid groups. In 2005, Ioana, Peterson & Popa obtained other such examples using infinite free products of (amplifications of) w-rigid factors. We will show, extending results of theirs, from finite von Neumann algebras to almost periodic von Neumann algebras, how we can produce new examples of II_1 factors with prescribed countable fundamental group. Our proofs rely on Popa's deformation/rigidity theory.

ADRIAN IOANA
Caltech

Cocycle superrigidity for profinite actions of Kazhdan groups

A measure preserving action $\Gamma \curvearrowright X$ is called profinite if it is the limit of actions $\Gamma \curvearrowright X_n$, with X_n finite. I will prove that if Γ is a Kazhdan group, then any cocycle for the action of Γ on X (with values in a countable group) comes from the action of Γ on X_n, for some n.

KENLEY JUNG
University of California, Los Angeles

tba

YASUYUKI KAWAHIGASHI
University of Tokyo

Superconformal field theory and operator algebras

An operator algebraic formulation of superconformal field theory is presented. A new relation of the Jones index and the Fredholm index is given. We will also give a classification result for small central charges. This is a joint work with S. Carpi and R. Longo.

MAGDALENA MUSAT
University of Memphis

Classification of hyperfinite factors up to completely bounded isomorphism of their predual

In 1989 Christensen and Sinclair proved that all infinite hyperfinite (= injective) factors with separable preduals are cb-isomorphic (i.e., isomorphic as operator spaces). When looking at preduals, the situation turns out to be very different. In recent work with Uffe Haagerup, we show that if M and N are hyperfinite factors (on separable Hilbert spaces) such that M is semifinite and N is of type III, then their preduals are not cb-isomorphic. Furthermore, we construct a one-parameter family of hyperfinite type III_0 factors with mutually non-cb-isomorphic preduals, and we give a characterization of those hyperfinite factors M whose preduals are cb-isomorphic to the predual of the hyperfinite type III_1 factor.

REMUS NICOARA
University of Tennessee

Subfactors and Hadamard Matrices

To any complex Hadamard matrix H one associates a spin model commuting square, and therefore a hyperfinite subfactor. It is an interesting question to what extent this subfactor captures the symmetries of the H. We show for instance that Dita-Haagerup matrices yield subfactors with intermediate subfactors. We also investigate other constructions of parametric families of complex Hadamard matrices.

NARUTAKA OZAWA
University of California, Los Angeles

On a class of II_1 factors with at most one Cartan subalgebra

I will talk on my recent work with S. Popa which locates all Cartan subalgebras in certain type II_1 factors.

EMILY PETERS
University of California, Berkeley

Constructing the Haagerup Subfactor with Planar Algebras

Planar algebras capture the rich structure of the tower of relative commutants, which is the main invariant of a subfactor. The reverse also works: planar algebras can be used to construct subfactors. In this talk I will discuss how to construct a planar algebra which gives the Haagerup subfactor. This is the smallest exotic subfactor.

JESSE PETERSON
University of California, Berkeley

Group cocycles into the left regular representation and applications to II_1 factors

I will present some results (joint work with Andreas Thom) on the structure of groups which have non-trivial cocycles into their left regular representation, i.e. groups with positive first Betti number. I will also present some applications to the von Neumann algebras associated to these groups.

MIKAEL PICHOT
Institut des Hautes Etudes Scientifiques

Intermediate rank and property RD

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SORIN POPA
University of California, Los Angeles

Some open problems on II_1 factors of group actions

I will present some open problems, old and new, related to II_1 factors arising either from free ergodic actions of countable groups on the probability space (i.e. group measure space factors), or from discrete groups (i.e. group factors).

DAN SHIBER
University of California, Los Angeles

CCR random matrix models with potential

In this short talk we discuss (in analogy to the Gaussian random matrix model with potential) the construction of a CCR random matrix model with potential and the associated free stochastic differential equation, enumeration of planar maps, and Schwinger-Dyson equation.

DIMITRI SHLYAKHTENKO
University of California, Los Angeles

Algebras of q-semicircular elements and free stochastic calculus

Using free stochastic calculus we give a lower estimate on the free entropy dimension for Bozejko-Speicher q-semicircular families, which is valid for small values of q. Combining this with earlier results of Voiculescu, Ge, Stefan, Jung and others, this gives certain structural information about the von Neumann algebra generated by these families; in particular, for small q, these algebras have no Cartan subalgebras.

ANDREAS THOM
Georg-August-Universitt Gttingen

Group cocycles and affiliated operators

In joint work with Jesse Peterson (Berkeley) we obtained strong results about the subgroup structure of a group with positive first l2-Betti number. These results have numerous applications in geometric and combinatorial group theory. In particular, many results which were known to hold for free groups or one-relator groups extend by our results to arbitrary groups with a positive first l2-Betti number.

YOSHIMICHI UEDA
Kyushu University

Orbital free entropy and Its dimension counterpart

rbital free entropy $\chi_{\rm orb}$ should be regarded as a candidate of microstate definition of Voiculescu's free mutual information i^*. In fact, it measures the "degree of free independence" among hyperfinite subalgebras inside a fixed tracial W^*-probability space and satisfies the natural formula

$$\chi(X_1,\dots,X_n)=\chi_{\rm orb}(X_1,\dots,X_n)+\sum_{k=1}^{n}\chi(X_k).$$

In the talk, I'll discuss it and its dimension counterpart $\delta_{0,\rm orb}$ (like free entropy dimension δ_0) together with some recent progress. The materials are mainly due to a joint work with F. Hiai and T. Miyamoto.

STEFAEN VAES
K.U.Leuven

Explicit computations of all finite index bimodules for a family of II_1 factors

The bimodules of finite Jones index over a II_1 factor, equipped with the Connes tensor product, form a fusion algebra. Using techniques of Popa, I will present the first explicit computations of fusion algebras for a family of II_1 factors defined by generalized Bernoulli actions and identify them with extensions of Hecke fusion algebras. We obtain in particular the first explicit examples of II_1 factors without non-trivial finite index bimodules and hence, without non-trivial finite index subfactors.

ANTONY WASSERMANN
CNRS

tba

HANS WENZL
University of California, San Diego

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