WABASH
EXTRAMURAL MODERN ANALYSIS
SEMINAR

November 6 2010

2:00 p.m.

at

Wabash College

in rooms 114 and 118 Baxter Hall

Times given are Eastern Time,
which is currently local time for Central Indiana and Ohio.

2:00–2:30	*Refreshments and conversation*
2:30–3:30	**Reduced Free Products of Nuclear C*-algebras** *CALEB ECKHARDT, Purdue University*
3:30–4:00	*More refreshments and conversation*
4:00–5:00	**On linear independence of lattice Gabor systems** *S. ZUBIN GAUTAM, Indiana University*
5:00–...	*Refreshments and farewells*

The purpose of Wabash Seminar talks is to present surveys of interest to all analysts, including graduate students and scholars working in areas far from the speaker's specialty. Come and meet your fellow analysts, learn what's going on, and spread the word.

Next Meeting: February 26, 2011

For further information call

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Reduced Free Products of Nuclear C*-algebras

CALEB ECKHARDT

Abstract: In '93 Bozejko and Picardello showed that the free product of discrete amenable groups are weakly amenable. We would like to have a version of their result for nuclear C*-algebras, namely: Does the reduced free product of nuclear C*-algebras have the completely contractive approximation property (CCAP)? In '06 Ricard and Xu outlined a promising strategy for the solution of this problem by proving the following: Let A_1, A_2 be nuclear C*-algebras with states ϕ_1, ϕ_2. If for each i there is a sequence of ϕ_i-preserving, finite rank, completely positive maps approximating the identity maps, then the reduced free product of the (A_i, ϕ_i) has the CCAP. We will show that this strategy cannot work in general, by giving examples of homogeneous (hence nuclear) C*-algebras and states that resist such an approximation. On the other hand, we'll show that certain well-behaved states on homogeneous C*-algebras always enjoy a state-preserving approximation of the identity.

On linear independence of lattice Gabor systems

S. ZUBIN GAUTAM

Abstract: A Gabor system in $L^2(\mathrm{R}^\mathrm{d})$ is a collection of "time-frequency translates" or "phase space" translates of a fixed nonzero function $f \in L^2(\mathrm{R}^\mathrm{d})$; more precisely, it is a collection of simultaneous modulates and translates of f. A basic but unresolved conjecture of Heil, Ramanathan, and Topiwala asserts that any finite Gabor system should be linearly independent. Using basic techniques from ring theory and the theory of finite von Neumann algebras, in 1999 P. Linnell proved that the conjecture holds if the time-frequency translations are drawn from a lattice in phase space, and his result is essentially the strongest to date regarding this conjecture. In this talk, which describes joint work with C. Demeter, we discuss a connection between Linnell's theorem and the theory of random Schrödinger operators; for a restricted class of lattices, we give an alternate proof inspired by this connection.