WABASH
EXTRAMURAL MODERN ANALYSIS
SEMINAR

February 23

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	**Decomposing the wavelet representation for crystallographic groups** *JUDITH PACKER, University of Colorado Boulder*
3:30–4:00	*More refreshments and conversation*
4:00–5:00	**Relations Between Noncommutative Convolutions in Operator valued probability** *WEIHUA LIU, 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: April 13

For further information call

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Decomposing the wavelet representation for crystallographic groups

JUDITH PACKER

We study certain types of wavelets associated to crystallographic groups that generalize conventional wavelets in the two-dimensional plane. In our set-up, the group of integer translations is replaced by action by a fixed wallpaper symmetry group, and we choose our dilation matrix to be an odd integer times the identity, for some odd integer greater than or equal to 3. We focus on the use of wavelet sets for crystallographic groups constructed by K. Merrill, whose inverse Fourier transforms give the wavelets. We can use the wavelet sets to decompose the unitary representation of the associated discrete semidirect product generated by the crystallographic group and the dilation matrix into irreducible components. This work is joint with L. Baggett, K. Merrill, and K. Taylor.

Relations Between Noncommutative Convolutions in Operator valued probability

WEIHUA LIU

The reduced free product with amalgamation is an important way to construct new algebras from known ones, and defines free independence in noncommutative probability. In this talk, I will introduce a family of independence relations which generalize Voiculescus free independence in operator-valued probability. The independence relations are defined via rooted trees and their associated additive convolutions are called T-free convolutions. Then, I will briefly review the operator valued power convolutions for free and Boolean independence. With the help of the T-free decomposition theorem, I will show how to use the matricial functions to prove relations between operator-valued power convolutions and T-free convolutions.