WABASH
EXTRAMURAL MODERN ANALYSIS
SEMINAR

December 10

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   **Coarse embeddings into Hilbert space and C*-algebra K-theory**
RUFUS WILLETT, University of Hawaii

3:30–4:00   *More refreshments and conversation*

4:00–5:00   **The C*-algebra of a vector bundle**
MARIUS DADARLAT, Purdue 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: TBA

For further information call

Marius Dadarlat, Purdue University, (765) 494–1940
E–mail: mdd@math.purdue.edu
Web: http://www.math.purdue.edu/~mdd/Wabash/

Coarse embeddings into Hilbert space and C*-algebra K-theory

RUFUS WILLETT

An important result of Yu from the 90s proves the coarse Baum-Connes conjecture (whence some other classical conjectures in geometry and topology...) for metric spaces that coarsely embed into Hilbert space. I will outline a new elementary proof of Yu's theorem, including (what I hope is) a simple explanation of the coarse Baum-Connes conjecture. Here 'elementary' means only using basic C*-algebra K-theory: no bivariant KK-theory or E-theory, and no infinite dimensional Bott periodicity. This means the same machinery works to some extent in algebraic K-theory. This is joint work with Guoliang Yu.

The C*-algebra of a vector bundle

MARIUS DADARLAT

We show that the Cuntz-Pimsner algebra O_E of a vector bundle E of rank ≥ 2 over a compact metrizable space X is determined up to an isomorphism of $C(X)$-algebras by the ideal $(1 - [E])K^0(X)$ of the K-theory ring $K^0(X)$. Moreover, if E and F are vector bundles of rank ≥ 2, then a unital embedding of $C(X)$-algebras $O_E \subset O_F$ exists if and only if $1 - [E]$ is divisible by $1 - [F]$ in the ring $K^0(X)$. We introduce more computable K-theory invariants and exhibit a series of characteristic classes of E which are invariants of O_E and study their completeness.