WABASH
EXTRAMURAL MODERN ANALYSIS
SEMINAR

April 19

2:00 p.m.

at

Wabash College

in rooms 114 and 118 Baxter Hall

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

2:00–2:30	*Refreshments and conversation*
2:30–3:30	**BMO Functions and Boundedness of Riesz Transforms—from classical to modern analysis** *TAO MEI, University of Illinois at Urbana-Champaign*
3:30–4:00	*More refreshments and conversation*
4:00–5:00	**Kakeya sets and directional maximal operators** *MICHAEL BATEMAN, 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: September 6-7 miniconference at IUPUI

For further information call

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BMO Functions and Boundedness of Riesz Transforms—from classical to modern analysis

TAO MEI

The talk will start by reviewing the classical L^p-boundedness of Riesz transforms and the connections to BMO functions. I will then introduce our recent work (joint with M. Junge) on them in the noncommutative case. At the end, I will show examples coming from free groups and applications to quantum metic spaces.

Kakeya sets and directional maximal operators

MICHAEL BATEMAN

The Lebesgue differentiation theorem can be proved by establishing an estimate for the Hardy-Littlewood maximal operator, which is an operator that averages over balls. What about differentiation theorems that allow one to average over rectangles in two dimensions? Answering this question amounts to determining whether a related maximal operator is bounded on some function space.

We will show how the behavior of this maximal operator depends on the set of directions over which we are allowed to average by deciding which sets of directions can yield rather strange sets. These strange sets will be similar to sets constructed by Besicovitch in his solution to the classical Kakeya needle problem.