

Speaker: William B. Johnson, Texas A&M University

Time and Place: 2008/02/15, 4:05-5:00pm, Milner 317.

Title: *Multiplication operators on $B(L_p)$ and ℓ_p strictly singular operators on L_p .*

Abstract: A classification of weakly compact multiplication operators on $L(L_p)$, $1 < p < \infty$, will be given. This answers a question raised by Saksman and Tylli in 1992. The classification involves the concept of ℓ_p -strictly singular operators, and the structure of general ℓ_p -strictly singular operators on L_p will be discussed. The main result is that if an operator T on L_p , $1 < p < 2$, is ℓ_p -strictly singular and $T|_X$ is an isomorphism for some subspace X of L_p , then X embeds into L_r for all $r < 2$, but X need not be isomorphic to a Hilbert space.

A byproduct of this research is that if T is convolution by a biased coin on L_p of the Cantor group, $1 \leq p < 2$, and $T|_X$ is an isomorphism for some reflexive subspace X of L_p , then X is isomorphic to a Hilbert space. The case $p = 1$ answers a question asked by Rosenthal in 1976.

This is joint work with Gideon Schechtman.