COLLOQUIUM
UNIVERSITY OF PITTSBURGH
FRIDAY, OCTOBER 14, 2016

704 THACKERAY HALL

3:30 P.M.

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THE FIXED POINT PROPERTY FOR NONEXPANSIVE MAPPINGS IN BANACH SPACES: WHAT ROLE DOES THE NORM PLAY?

ABSTRACT: If C is a subset of a Banach space $(X, ||.||)$, a mapping $T : C \to C$ is nonexpansive if

$$||Tx - Ty|| \leq ||x - y||$$

for every $x, y \in C$. A Banach space is said to have the Fixed Point Property for nonexpansive mappings (FPP) if every nonexpansive mapping defined from a closed convex bounded subset into itself has a fixed point. It is well-known that Hilbert spaces or, more generally, uniformly convex Banach spaces have the FPP. Note that nonexpansiveness strongly depends on the underlying norm. In fact, if we replace the norm by an equivalent one, the set of nonexpansive mappings may change. Is the Fixed Point Property preserved by renormings? In a more precise way: Does every renorming of a Hilbert space have the FPP?, If a Banach space fails to have the FPP, could it be renormed in order to satisfy this property? We will try to find out what is known regarding these questions.

Refreshments served at 3:00 p.m.
in the Math Dept. COMMON ROOM, Thackeray 705