

THE MATHEMATICS DEPARTMENT PRESENTS

A MATHEMATICS COLLOQUIUM

THURSDAY, October 16, 2008

BOND HALL 217

4:00 pm

Title: Capacities, Surface Area, and Radial Sums

Speaker: Richard Gardner, Western Washington University

Abstract: The Brunn-Minkowski inequality is one of the most important in mathematics. In one of its variations, it says that for convex bodies K and L in \mathbb{R}^n and $0 < t < 1$,

$$V((1-t)K + tL)^{1/n} \geq (1-t)V(K)^{1/n} + tV(L)^{1/n},$$

where V denotes n -dimensional volume and

$$(1-t)K + tL = \{(1-t)x + ty : x \in K, y \in L\}.$$

From the Brunn-Minkowski inequality, the famous isoperimetric inequality can be obtained in a few easy lines. The talk is a report on joint work with David Hartenstine on inequalities, some already known and some new, of the Brunn-Minkowski type for p -capacity in \mathbb{R}^n for $1 \leq p < n$. Surface area will also enter the discussion.

What's p -capacity? Come to the talk and found out! As usual, I'll try to illustrate with pictures where possible.

Refreshments will precede the talk at 3:30pm in Bond Hall 300.