PITTSBURG STATE UNIVERSITY

DEPARTMENT OF MATHEMATICS

Colloquium

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Paradoxical Decompositions of Subsets in Euclidian Spaces. Can we make two balls out of one ball? Can we make a square out of a circle?

Abstract

We say that two subsets A and B of the Euclidean space $\mathbb{R}^n$ are equidecomposable if there is a partition of A into finitely many pieces $\{A_i : i< k\}$ which can be rearranged by some isometries $\{g_i : i< k\}$ to form a partition $\{g_i(A_i) : i < k\}$ of B (roughly speaking, we can "cut" A into finitely many pieces and reassemble them to form B. We will discuss some famous examples of equidecomposable sets, like Banach-Tarski paradox, that is, equidecomposability of the unit ball B in to two copies of B in 3-dimensional space. Another spectacular example is Laczkovich's solution of the Tarski's circle-squaring problem.

Tuesday, November 21, 2000
2:00 p.m.
Yates 215

Students are encouraged to attend.
There will be cookies and conversation afterwards in Yates 210