The SUMO Speaker Series for Undergraduates
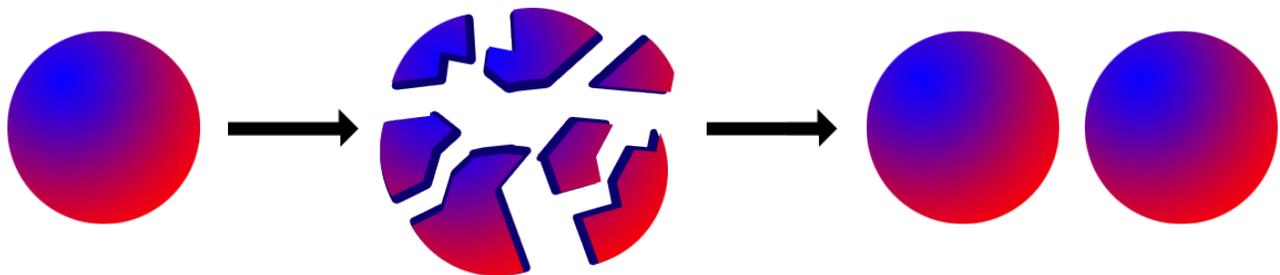
Wednesday, April 25th

4:15-5:05, room 380C

(Food Provided)

A Paradoxical Decomposition of the Sphere

Professor Rick Sommer

ABSTRACT:

Perhaps the most perplexing theorem in mathematics, the Banach-Tarski Paradox, states that a solid ball in three-dimensional space can be split into finitely many non-overlapping pieces which can then be reassembled, using only rigid motions, to produce two identical copies of the original ball. In this talk we will discuss the proof of the Banach-Tarski Paradox and address its dependence on the Axiom of Choice. From there we will consider what it means for the Axiom of Choice to be independent of the rest of set theory, and the possibility of rejecting this axiom in order to avoid the paradox.

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