Student Seminar

Pi Mu Epsilon & Gamecock Math Club

Exploring the Nature of Infinity Through Countable and Uncountable Sets

by Anirban Ray, USC Graduate Student

In this talk we will learn about 2 types of infinity namely countable and uncountable infinity. We will explore these ideas through some common sets like the set of natural numbers, real numbers. The concept of functions will be introduced as a topological tool to explain these concepts using bijective functions as a means for associating cardinalities of sets.

Using functions, we will establish the topological definitions for countability and uncountability of sets. We will also investigate infinite sets like the set of rational numbers and the nature of their infinity. The nature of intervals and their countability will be explored using the same ideas as used for the sets mentioned above. In conclusion we will try to create a clear category for countable sets and uncountable sets and examine the topological nature of the 2 types of infinity.

Bio: Anirban Ray is in his third year at USC as a PhD student. His interests lie in Differential Equations and Functional Analysis. Currently he is working on constructing weak solutions using Finite element methods for PDEs. Outside math he likes reading books and playing games.

Monday 14th October 2024 at 6pm
LeConte 118

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