Speaker: Sean English
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125 Hayes-Healy Hall

Title: A random variant of the game of plates and olives

Abstract:

The game of plates and olives was originally formulated by Nicolaescu and encodes the evolution of the topology of the sublevel sets of Morse functions. We consider a random variant of this game. The process starts with an empty table. There are four different types of moves: (1) add a new plate to the table, (2) combine two plates and their olives onto one plate, removing the second plate from the table, (3) add an olive to a plate, and (4) remove an olive from a plate. We show that with high probability the number of olives is linear as the total number of moves goes to infinity. Furthermore, we prove that the number of olives is concentrated around its expectation.