

Date: October 13th

Speaker: Noah Schweber

Title: Computability-theoretic complexity of Banach-Mazur games

Abstract: Suppose A is subset of some fixed topological space X . In the Banach-Mazur game for A , players I and II alternately build a descending sequence of nonempty open subsets of X , and player I wins iff the intersection of that sequence contains an element of A .

I'll present some results on computability-theoretic aspects of Banach-Mazur games - specifically, on the difficulty of finding winning strategies in such games. I'll show that the reals which can be coded into Banach-Mazur games in Baire space are exactly the hyperarithmetic reals, and that this is faithfully reflected on the reverse math side of things - with a twist when we consider the "lightface" determinacy principles. Time permitting, I'll also discuss some set-theoretic topics.