

Speaker: Andrew Marks

Title: Marker sets, paradoxicality, and the Ramsey property.

Abstract: We discuss two theorems about sparse complete sections for Borel graphs. The first theorem gives a sufficient condition for an action of a group G on a set X to have a paradoxical decomposition. This condition is in terms of the ability to partition the space X into countably many sets which are sufficiently sparse with respect to a natural graph on X . This result has applications to the existence of Baire measurable paradoxical decompositions, and we are also motivated by the Borel Rusiewicz problem and the open question of whether the Banach Tarski paradox can be performed in $L(\mathbb{R})[U]$. Our second theorem concerns the problem of finding marker sets which are eventually "far" from each point in a locally finite Borel graph. We use the Galvin-Prikry theorem to show that this characterizes smoothness of Borel graphs.

This is joint work with Clinton Conley and Spencer Unger.