THE DEPARTMENT OF MATHEMATICAL SCIENCES

Indiana University - Purdue University Fort Wayne

is pleased to present

Drake Olejniczak

Western Michigan University

A Foray into Ramsey Theory

Abstract

Suppose you are hosting a party at which any two people are either friends or strangers. What is the smallest number of people you can have at this party to guarantee that there are either three mutual friends or three mutual strangers? If you are able to answer this question, great! If you can solve the same problem but with four mutual friends and four mutual strangers, then this would be even more impressive. However, if you are able to solve the problem with five mutual friends and five mutual strangers, then you are surely a genius and would (likely) be the only person on earth to know the answer. These problems are examples of a branch of mathematics known as Ramsey theory, named after the British mathematician, philosopher, and economist Frank Ramsey $(1903 - 1930)$. In this talk, I will introduce some basic concepts of graph theory, and we will see how these party problems can be modeled and understood with graphs. I will also introduce a new type of party problem that came about through my research at Western Michigan University.

Noon – 1:00, Monday, April 9, 2018. Location: Kettler 216

`http://ipfw.edu/departments/coas/depts/math/news/seminars.html`