NORTHERN ARIZONA UNIVERSITY

Department of Mathematics and Statistics
Colloquium
Tuesday February 20
AMB 164 4:00 - 5:00 pm

Walecki tournaments

Steve Wilson

Northern Arizona University

Abstract

Abstract: The complete graph on n vertices certainly has a Hamilton cycle; lots of them in fact. (HW 1: how many, exactly?) So, can we find a collection of them that use up all the edges in the graph? (This kind of thing is called a cycle decomposition.) First, n has to be odd for that to be admitted as possible. For K_3, K_5, and K_7, it is easy to do, but for K_9 we have problems.

In the early 1890s a mathematician named Walecki had a clever idea that shows that every K_{odd} has a decomposition into Hamilton cycles. By orienting each cycle independently, we can produce a lot of interesting orientations of K_n. (These are called tournaments.)

In this talk, I will discuss the isomorphism classes of these tournaments, isomorphism problems, and questions of symmetry.

Refreshments at 3:45