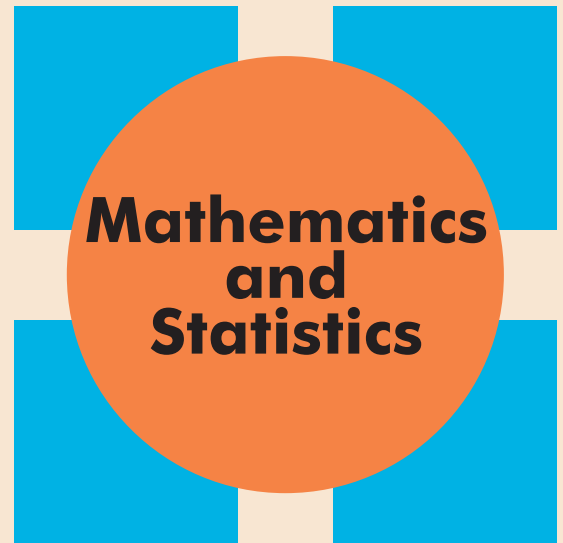


COLLOQUIUM

Karen Meagher
University of Regina

Erdős–Ko–Rado Theorems for Groups



Date: Friday February 8, 2019

Time: 3:30 - 4:30 PM

Room: CL 305

Abstract: In 1964 Erdős, Ko and Rado determined the size and structure of the largest collection of intersecting sets. This result has become a cornerstone of extremal set theory and has been extended to many other objects. In this talk I will focus on versions of the Erdős–Ko–Rado Theorem for permutations.

Two permutations are intersecting if they both map some i to the same point (so σ and π are intersecting if and only if $\pi^{-1}\sigma$ has a fixed point). In 1977, Deza and Frankl proved that the size of a set of intersecting permutations is at most $(n - 1)!$. It wasn't until 2003 that the sets of intersecting permutations that meet this bound were characterized. In fact, between 2003 and 2009 four different proofs of the characterization were published.

Since then, this area has developed greatly. One focus has been to determine the largest set of intersecting permutations in a group, rather than considering all the permutations in the symmetric group. Versions of the EKR theorem have been proven for specific groups. Recently the size of the maximum intersecting set of permutations from any 2-transitive group was determined using an algebraic approach. I will discuss this result and explore the feasibility of using this approach with different groups.