Speaker: Ed Swartz (Cornell)

Title: Polymatroids are to Finite Groups as Matroids are to Finite Fields

Combinatorics Seminar, Tuesday, February 25, 2020

In 1935 Whitney introduced matroids as a combinatorial abstraction of linear independence. Since then there has been a strong connection between matroids, and the geometry and combinatorics of finite dimensional vector spaces over finite fields. Polymatroids are a very simply defined generalization of matroids. I will try to convince the audience that the title is nowhere near as crazy as it sounds. I will take classic examples of how matroids and vector spaces over finite fields interact, and show that they are special cases of how polymatroids and finite groups interact.

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Last update: 2020/05/18 03:20

