Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, March 30

Speakers: Genny Madden and Max Ward, Illinois State University

Shadows of Colored Complexes and Cycle Decompositions of Equipartite Hypergraphs

Let $K^h_{n\times m}$ be the complete h-uniform n-partite hypergraph with parts of size m. A cycle of length c in a hypergraph is an alternating sequences of distinct vertices, v_i, and distinct edges e_i of the form $v_1, e_1, v_2, e_2, \ldots, e_c, v_c$ such that $v_i, v_{i+1} \subseteq e_i$ and $v_{c+1} = v_1$. By applying the shadows of colored complexes, we nearly settle the problem of partitioning the edges of $K^h_{n\times m}$ into cycles of length c where c is a multiple of m. This is joint work with Amin Bahmanian and Max Ward.