

Speaker: Mahdad Khatirinejad

Affiliation: Aalto University

Title: Vertex-colouring edge-weightings with two edge weights

Abstract: An edge-weighting vertex colouring of a (di)graph is an edge-weight assignment such that the accumulated weights at the vertices yields a proper vertex colouring. If such an assignment from a set S exists, we say the graph is S -weight colourable.

Using the Combinatorial Nullstellensatz and a classical theorem of Schur, we show that every digraph is S -weight colourable for any set S of size 2.

It is conjectured that every graph with no isolated edge is $\{1, 2, 3\}$ -weight colourable. We explore the problem of classifying those graphs which are $\{1, 2\}$ -weight colourable.

This is joint work with Reza Naserasr, Mike Newman, Ben Seamone, and Brett Stevens.