Thomas Zaslavsky (Binghamton)

Hypercubical Set Labellings of Graphs

Abstract for the Combinatorics Seminar 2013 February 5

I will review some recent work on labellings of the vertex set V of a graph G by subsets of a finite set X. There are many different reasons for and conditions on such labellings. Often, the labelling f is required to be injective; then it is called a *set valuation* of G.

The power set of X can be viewed as a graph, the *hypercube* Q, in which subsets are adjacent if they differ by one element, i.e., $|S \oplus T| = 1$. (\oplus denotes symmetric difference.) Then f is an injection $V(G) \to V(Q)$. The G-distance $d_G(u,v)$ can be compared with the Q-distance $d_Q(f(u),f(v))$, and one may require that the ratio of the distances is a constant, k. Then f is called a *uniform distance-compatible set labelling* of G (in India) or a k-scale embedding of G into Q (in France).

There are a plethora of open problems. In particular, 1-scale hypercube embeddings have been characterized; embeddable graphs are called *partial cubes* and there is quite a literature. 2-scale embeddings are the next most important case and have not been characterized.

This talk is based on a paper "Uniform distance-compatible set-labelings of graphs" by Prof. Sr. K.A. Germina (to appear in JCISS).

From:

http://www2.math.binghamton.edu/ - **Department of Mathematics and Statistics, Binghamton University**

Permanent link:

http://www2.math.binghamton.edu/p/seminars/comb/abstract.201302zas

Last update: 2020/01/29 19:03

