VCU Discrete Mathematics Seminar

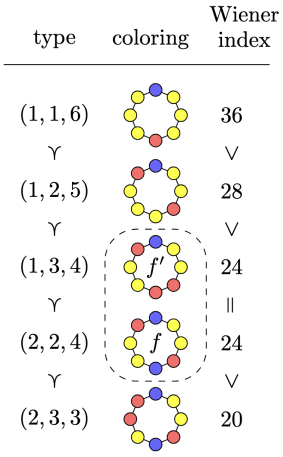
Energies of Vertex Colorings on Paths and Cycles

Prof Brent Cody (VCU!)

Wednesday, Dec. 3
1:00-1:50 EST

In person in 4145 Harris Hall. And a Zoom option:

`https://vcu.zoom.us/j/81475528886`
`password=graphs2357`



The Wiener index of a vertex set in a graph is the sum of all pairwise distances within the set. Thus, sets that are tightly clustered have small Wiener index, while those that are widely dispersed have large index. A maximizer is a vertex set with maximum possible Wiener index among all sets of the same size, and such sets are typically as spread out as the graph allows.

The Wiener index of a vertex coloring is defined as the sum of the Wiener indices of its color classes—or equivalently, the sum of all pairwise distances between vertices of the same color. Maximizing this index produces colorings whose color classes are collectively as dispersed as possible, but the colors compete: spreading out one color typically forces another to compromise. We characterize vertex colorings of paths and cycles that maximize the Wiener index in several natural senses.

This is joint work with Viktoriya Bardenova, Neal Bushaw, Paul Fay, and Maya Tennant.

For the DM seminar schedule, see:

`https://go.vcu.edu/discrete`