VCU Discrete Mathematics Seminar
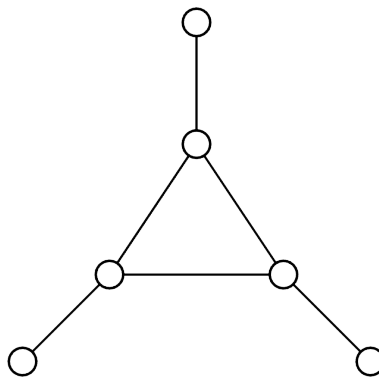
Graph Edge Colorings
& the Uniqueness Spectrum

Yunus Bidav
(VCU!)

Wednesday, Oct. 11
1:00-1:50 EST

In person! in 4145 Harris Hall, and Zoom @

`https://vcu.zoom.us/j/92975799914`
`password=graphs2357`

A **proper edge coloring** of G is an assignment of colors to the edges of G such that any two edges sharing an endpoint are colored differently. A graph is k**-uniquely colored** when exactly k edges have colors which appear nowhere else in the graph. The **uniqueness spectrum** of a graph is the set of all k for which G can be k-uniquely colored; we call this $\mathrm{Spec}(G)$.

Notice that any $k \in \mathrm{Spec}(G)$ must be between zero and the number of edges of G. A short argument shows that the $|E(G)| - 1 \notin \mathrm{Spec}(G)$. We call G **full spectrum** if $\mathrm{Spec}(G)$ contains every other value of k; that is, $\mathrm{Spec}(G) = \{0, \ldots, \|G\| - 2, \|G\|\}$. In this talk we give a complete classification of those graphs which have full spectrum, and discuss directions for future work.

This is joint work with Neal Bushaw, Ro Lee, and Cindy Mitrovic.

For the DM seminar schedule, see:

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