VCU Discrete Mathematics Seminar

The k-general d-position problem for graphs

Prof Brent Cody
(VCU!)

Tuesday, Oct. 1 (SPECIAL DAY)
1:00-1:50 EDT

In person! in 4145 Harris Hall, and Zoom @
`https://vcu.zoom.us/j/92975799914`
`password=graphs2357`

A set of vertices of a graph is said to be in general position if no three vertices from the set lie on a common shortest path. Recently Klavzar, Rall and Yero generalized this notion by defining a set of vertices to be in general d-position if no three vertices from the set lie on a common shortest path of length at most d. We generalize this notion further by defining a set of vertices to be in k-general d-position if no k vertices of the set lie on a common shortest path of length at most d. The k-general d-position number of a graph is the largest cardinality of a k-general d-position set. We will discuss some bounds on the k-general d-position number of a graph and the computation of the k-general d-position number of finite paths and cycles. Along the way we will establish that the maximally even subsets of cycles, which were introduced in Clough and Douthett's work on music theory, provide the largest possible k-general d-position sets in n-cycles. We also prove a formula for the k-general d-position number of certain thin finite grids, providing a partial answer to a question asked by Klavzar, Rall and Yero.

For the DM seminar schedule, see:

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