## **VCU** Discrete Mathematics Seminar

On cyclically 4-connected cubic graphs

## Prof Sandra Kingan (Brooklyn College and the Graduate Center, CUNY)

Wednesday, Feb. 21 1:00-1:50 EST

**On Zoom**, Watch Party in 4145 Harris Hall, @ https://vcu.zoom.us/j/92975799914 password=graphs2357



A 3-connected cubic graph is cyclically 4-connected if it has at least 8 vertices and when removal of a set of three edges results in a disconnected graph, only one component has cycles. By introducing the notion of cycle spread to quantify the distance between pairs of edges, we get a new characterization of cyclically 4-connected graphs. Let  $Q_n$  and  $V_n$  denote the ladder and Mobius ladder on  $n \ge 8$  vertices, respectively.

We prove that a 3-connected cubic graph G is cyclically 4-connected if and only if G is either the Petersen graph,  $Q_n$  or  $V_n$  for  $n \ge 8$ , or G is obtained from  $Q_8$  or  $Q_{10}$  by bridging pairs of edges with cycle spread at least (1, 2).

This is joint work with Robert Kingan.

For the DM seminar schedule, see: https://go.vcu.edu/discrete