# VCU Discrete Mathematics Seminar 

## On cyclically 4-connected cubic graphs

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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 $\mathrm{Q}_{\mathrm{n}}$ and $\mathrm{V}_{\mathrm{n}}$ denote the ladder and Mobius ladder on $n \geqslant 8$ 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 $n \geqslant 8$, or $G$ is obtained from $\mathrm{Q}_{8}$ or $\mathrm{Q}_{10}$ by bridging pairs of edges with cycle spread at least $(1,2)$.

This is joint work with Robert Kingan.

