

VCU Discrete Mathematics Seminar

Connectivity of contraction-critical graphs

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Wednesday, Jan. 30

1:00-1:50

4145 Harris Hall



A graph is k -contraction-critical if it is k -chromatic, but any proper minor is $(k - 1)$ -colorable. A classical result of Mader (1968) states that k -contraction-critical graphs are 7-connected for $k \geq 7$. It has been shown by Kawarabayashi and Yu (2013) that k -contraction-critical graphs are $\lfloor k/9 \rfloor$ -connected, which provides an improvement of Mader's result for large values of k .

In this talk, we provided the first improvement of Mader's result for small values of k , specifically that k -contraction-critical graphs are 8-connected for $k \geq 15$, 9-connected for $k \geq 27$, and 10-connected for $k \geq 43$. As a corollary of one of our intermediate results, we also prove that each 28-connected graph is 4-linked.

This is joint work with Runrun Liu and Martin Rolek.

For the DM seminar schedule, see:

<http://www.people.vcu.edu/~nobushaw/seminar.html>