

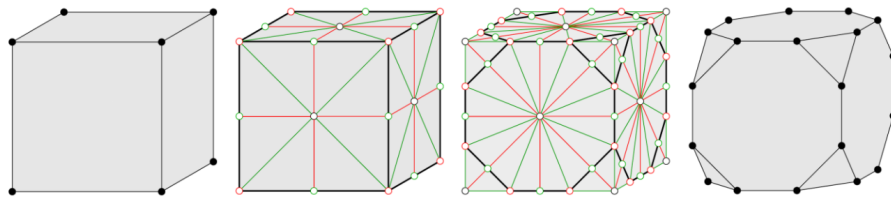
VCU Discrete Mathematics Seminar

The Effect of Local Symmetry-preserving Operations on Connectivity

Heidi Van den Camp
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Wednesday, Sept. 29
4145 Harris Hall, and Zoom
1:00-1:50

Zoom @ <https://vcu.zoom.us/j/92975799914>
password=graphs2357



Symmetry-preserving operations on polyhedra have been studied for a very long time. However, it was only recently that a general description of all 'local symmetry-preserving operations' (lsp-operations) was presented. With this description it becomes possible to prove general results about all of these operations instead of studying every operation separately. We use this approach to investigate the effect of lsp-operations on the (3-)connectivity of embedded graphs.

For plane graphs, all lsp-operations preserve 3-connectivity, but once we start looking at embedded graphs of higher genus this is no longer the case. The dual is the most striking example of an lsp-operation that can greatly reduce the connectivity of an embedded graph, but there are other operations that can destroy 3-connectivity in certain embedded graphs. We characterise exactly which lsp-operations always preserve 3-connectivity and which operations do not.

For the DM seminar schedule, see:

<https://www.people.vcu.edu/~clarson/dms.html>