

VCU Discrete Mathematics Seminar

Nowhere-zero 3-Flows in Graphs and Signed Graphs

Prof C. Q. Zhang
West Virginia University

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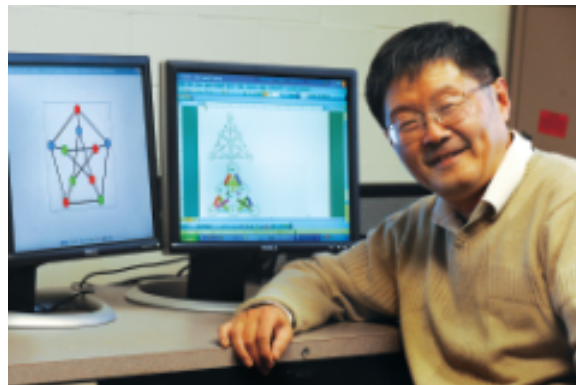
12:30–1:20

4119 Harris Hall

Tutte conjectured that *every 4-edge-connected graph admits a nowhere-zero 3-flow*. In this talk, we present two recent results about integer flows for graphs and signed graphs.

Tutte observed that every nowhere-zero k -flow on a plane graph gives rise to a k -vertex-coloring of its dual, and vice versa. Thus nowhere-zero integer flow and graph coloring can be viewed as dual concepts. Jaeger further shows that if a graph G has a face- k -colorable 2-cell embedding in some *orientable* surface, then it has a nowhere-zero k -flow. However, if the surface is *non-orientable*, then a face- k -coloring corresponds to a nowhere-zero k -flow in a *signed graph* arising from G . Graphs embedded in orientable surfaces are therefore a special case that the corresponding signs are all positive.

We will discuss two recent results which extend a recent breakthrough by Carsten Thomassen. (Joint work with Y.Z. Wu, D. Ye and W. Zang.)



For more information on our fall schedule, see:
<http://www.people.vcu.edu/~dcranston/DM-seminar/>