

VCU Discrete Mathematics Seminar

An Independence Structure Graph Decomposition

**Prof Craig Larson
(VCU!)**

Wednesday, Mar. 30
1:00-1:50

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



König-Egerváry (KE) graphs are graphs where sum of the *matching number* ν and the *independence number* α equals the order n of the graph; they are a generalization of bipartite graphs. In 1979 Deming developed an efficient algorithm to identify these, and to find a maximum independent set in the case the graph is KE.

We have extended Deming's KE-recognition algorithm to produce a decomposition of any graph with a perfect matching into subgraphs which are either almost KE (and where $\alpha = \nu - 1$) and where the remaining subgraph is KE (and where $\alpha = \nu$). Each of the subgraphs has a perfect matching.

For the DM seminar schedule, see:

<https://go.vcu.edu/discrete>