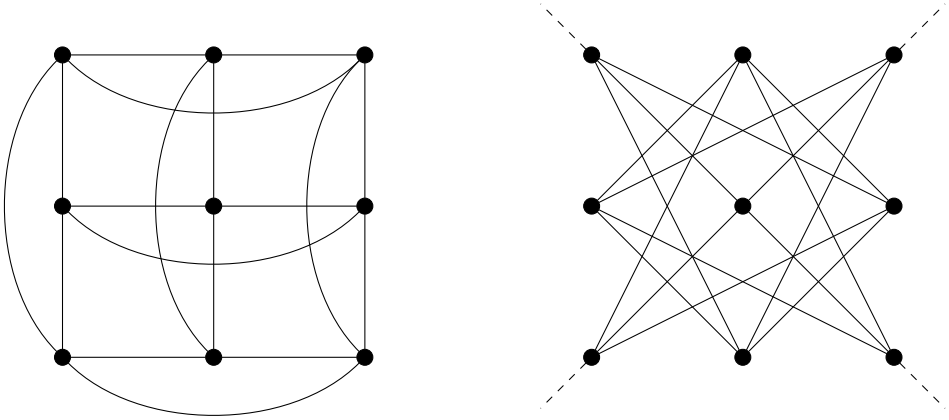
VCU Discrete Mathematics Seminar

Bootstrap Percolation for Three Infinite Graph Families

Dr Kevin McCall (VCU!)

Wednesday, Sept. 4
1:00-1:50 EDT

In person! in 4145 Harris Hall, and Zoom @
`https://vcu.zoom.us/j/92975799914`
`password=graphs2357`



Bootstrap percolation is a process defined on a graph. In the first round, an initial set of infected vertices is selected. In subsequent rounds, uninfected vertices become infected if they are adjacent to at least r infected vertices. Once infected vertices remain infected. We are interested in the r-percolation number, the size of a minimum r-percolating set of a graph G, which is denoted $m(G, r)$. Beginning with a simple lemma about 2-percolation in strongly regular graphs, we work our way towards determinining the 2-percolation numbers of three infinite families of diameter 2, 2-connected graphs: conference graphs (which include Paley graphs), complementary prisms of Paley graphs, and those McKay-Miller-Širáň graphs which are built up from complementary prisms of Paley graphs. (Joint work with Rayan Ibrahim and Huson LaFayette)

For the DM seminar schedule, see:

`https://go.vcu.edu/discrete`